Mission Integration Control Board Configuration Management Procedures

April 1990

NASA

National Aeronautics and Space Administration

DESCRIPTION OF CHANGES TO

MISSION INTEGRATION

CONTROL BOARD CONFIGURATION

MANAGEMENT PROCEDURES

CHANGE NO.	DESCRIPTION/AUTHORITY	DATE	PAGES AFFECTED
--	Basic issue/R18468-1	10/16/84	All
REV A	General revision/R18468-2	07/22/85	All
REV B	R18468-4 (includes entire contents of NSTS 21086 CR's G21086-1 thru -10) |This document supercedes and replaces NSTS 21086 .| |Document number changed from JSC 18468 to NSTS 18468 per CR G00051 dated 02/20/87|	11/17/88	All
1	Update section 7.0/R18468-5	01/04/89	51
2	Update sections 2.0, 3.0, tables 2-1 and 6-1/R18468-6A	04/07/89	2,3,6,23, 24,24A,25, 30,31
REV C	General revision/R18468-007; -009	04/04/90	All

Note: Dates reflect latest approval date of CR's received by PILS.

NSTS 18468

MISSION INTEGRATION

CONTROL BOARD CONFIGURATION

MANAGEMENT PROCEDURE

APRIL 4, 1990

APPROVED BY:

Signed by Harold M. Draughon
for Leonard S. Nicholson,
dated 02/22/88
LEONARD S. NICHOLSON
MANAGER, NSTS INTEGRATION
AND OPERATIONS

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1.0 INTRODUCTION

The purpose of this document is to establish detailed configuration management procedures for the control of program level requirements that have been formally delegated to the Mission Integration Control Board (MICB).

The configuration management procedures established herein are applicable to the MICB and all National Space Transportation System (NSTS) program supporting elements and contractors.

The configuration management activities defined in this document are the responsibility of the Manager, NSTS Integration and Operations, National Aeronautics and Space Administration (NASA) Lyndon B. Johnson Space Center (JSC), who is also solely responsible for control of and revision to these procedures.

2.0 MICB AUTHORITY

These procedures are in compliance with NSTS 07700, Volume IV and are applicable to the publications listed in appendix A. All NSTS documents listed are maintained by the document manager (i.e., not under MICB authority) until after they are baselined.

Table 2-1 identifies the control authority for those documents dispositioned by the MICB and those of the Program Requirements Control Board (PRCB) for which the MICB has screening authority.

The MICB is a configuration management board within the NSTS program. Configuration control within the NSTS program has been separated into three distinct levels

a. Level I relates to NASA Headquarters controlled activity.

b. Level II relates to activity controlled by the NSTS program. The MICB is a Level II control board representing the control authority for changes to delegated mission integration requirements. This board is delegated authority to baseline and disposition all proposed changes to requirements defined by documentation listed in section 2.0 that do not affect other Level I/II requirements, budgets, or schedules controlled by the Level I or II PRCB.

c. Level III is defined as the NSTS project elements (JSC directorates, Orbiter, Solid Rocket Booster (SRB), External

Table 2-1.- DOCUMENT DISPOSITION AUTHORITY SUMMARY

Document	MICB authority	PRCB or higher authority
MICB Configuration Management Procedures	X	
NSTS 07700, Volume XIV and Its Appendices	X	
NSTS 07700, Volume XIV, Attachment 1, ICD 2-19001*		X (TA signature)
SIP and annex blank books (except annex 8)	X	
Payload-specific PIP's and annexes (except annex 8)	X	
IDD's	X (TJ signature)	
Payload-unique ICD's	X (TJ signature)	
FDRD	Screen	X
FRD	X	
Ground rules and constraints	X	
FTSOD	X	
OMRSD	Screen	X
NSTS flight production schedules	X	

Table 2-1.- DOCUMENT DISPOSITION AUTHORITY SUMMARY (Continued)

Document	MICB authority	PRCB or higher authority
NSTS safety policy document	Screen	X
NSTS consumables document, NSTS 21100	X	

*Refer to NSTS 07700, Volume IV for detail authority.

Tank (ET), engineering, launch and landing sites, etc.). Level III project, integration contractor and payload customer configuration management procedures (to the extent applicable for responding to mission integration requirements baselines and changes thereto) shall be compatible with the procedures described herein.

2.1 Exceptions to the MICB Process

Changes related to the core Interface Control Document (ICD) (ICD 2-19001) will be documented using Level II PRCB forms. (Refer to NSTS 07700, Volume IV, Appendix C.) These changes will be concurred on by the TJ/Cargo Engineering Office, after concurrence by the TC/Customer Integration Office and the EB/Cargo Integration Engineering Office, prior to submittal to the PRCB system.

Changes affecting other Level II requirements, budgets, or schedules controlled by the Office of the Deputy Director, NSTS Program, shall be forwarded to the Level II PRCB for disposition in accordance with NSTS 07700, Volume IV, Appendix C. However, the MICB will act as the pre-PRCB screening board for all changes to documentation listed in table 2-1 that require Level II PRCB disposition.

2.2 Terms and Definitions

The Change Request (CR)/Directive (DIR) form is used as a Directive when baselining a document and as a CR when making a change or revision to a document.

The term "baseline" is defined as the creation of a new NSTS Program document on approval by the NSTS or a new payload specific document upon joint approval by the NSTS and the customer.

The baseline date is defined as the date of the last signature on the document title sheet.

Updating a baseline document means changes to modify, update, or add additional information. Once a document has been baselined, changes are made via the CR process described later.

A revision is the publication of an updated version of an already baselined document when approved changes are extensive enough to justify a revision.

The term "change" is defined as a CR which updates or revises a document.

The term "originator" refers to the individual responsible for a document (such as the Payload Integration Manager (PIM) for Payload Integration Plans (PIP's) or the annex manager for PIP annexes) or to a person within the NSTS payload/customer community who writes a CR to change NSTS documentation.

2.3 Daily MICB

The Daily MICB (DMICB) is a change control board chaired by the NASA/JSC, Manager, Cargo Engineering, Code TJ, or the designated representative. It consists of representatives from NASA/JSC, Lockheed Space Operations Company (LSOC)/NASA John F. Kennedy Space Center (KSC), Rockwell/KSC, and Rockwell/Downey. This MICB is separate from that described in other parts of this document and is addressed only in this section.

The primary function of the DMICB is to ensure that flight data products and integration hardware are provided to KSC. The DMICB accomplishes this task by dispositioning changes and reviewing/resolving issues relative to the above items so that KSC technical and/or delivery requirements are met.

An additional function of the DMICB is to serve as a forum for the consideration, evaluation, and disposition of any issue of concern to the payload/cargo integration engineering effort. Any concern, regardless of impact on other areas (e.g., Orbiter hardware), may be presented to the DMICB. No special form or format is required for presenting these issues. Any issue not within the DMICB Chairperson's signature authority will be forwarded by the chairperson to the proper control board.

The DMICB provides a quick-response method for presenting certain programmatic changes to NASA for review and disposition. These changes fall into one of the following four categories:

a. Implementing previously approved program directives

b. Authorizing make-work changes to previously approved engineering

c. Providing technical direction to build/repair mission integration hardware, authorize spares support, and perform field modifications

d. Providing authorization to transfer and/or ship flight hardware

A DMICB agenda is prepared by the Rockwell International (RI)/Configuration Management Office (CMO) which includes copies of all CR's and presentation material planned for the meeting. The agenda identifies all CR's and issues that are planned for presentation, listing the name of each person responsible for the presentation. The RI/CMO distributes copies of the agenda 1 day prior to the scheduled Telephone Conference (TELECON) to all concerned; i.e., JSC, KSC, and RI/Downey.

The required changes are documented on CR's which are submitted to the DMICB for review. The CR's are then discussed at a regularly scheduled TELECON where a disposition is made. A signed copy of each dispositioned CR is provided with the minutes of the DMICB meeting. Based on the chairperson's decision on the CR, RI will implement the CR as dispositioned.

An action status report is maintained by the DMICB to ensure that programmatic actions critical to cargo integration are accomplished. The action item status report is updated at each DMICB meeting.

The minutes of each DMICB TELECON are recorded by the secretary (at JSC), signed by the chairperson, and distributed to DMICB attendees and other offices as appropriate.

3.0 MICB MEMBERSHIP

The MICB convenes weekly to consider payload/flight changes and requirements, alternating between a classified and unclassified format.

Each MICB is held separately and is comprised of the following:

a. Chairperson - Manager, TA/NSTS Integration and Operations

b. Secretary - TB/Flight Production Management Office

c. Members - Representatives of the following organizations

Office	Unclassified MICB	Classified MICB
CB/Astronaut Office	X	X
DA/Mission Operations Directorate (MOD)	X	X
DF/Systems Division	X	X
DH/Operations Division	X	X
DM/Flight Design and Dynamics Division	X	X
EA/Engineering Directorate	X	X
GR/NSTS Integration and Operations Budget Office	X	X
KSC-CP/Director, Payload Projects Management	X	
KSC-TP/Director, Shuttle Operations	X	X
MJ/NSTS Operations Office	X	
MSFC, JA01/Manager, Payload Projects Office*	X	
NA/Saf., Rel., and Qual. Assur. Dir.	X	X
SA/Space and Life Sciences Directorate	X	
TB/Flight Production Management Office	X	
TC/Customer Integration Office	X	X
TJ/Cargo Engineering Office	X	X
TM/Mission Integration Office	X	X
VE/Orbiter Engineering Office	X	X
VF5/Flight Requirements Office	X	
VG/Orbiter Avionics Systems Office	X	X
ZR1/United States Air Force (USAF) Space Systems Division, Operating Location - AW	X	X

*For selected changes only.

4.0 FLIGHT PRODUCTION MANAGEMENT OFFICE RESPONSIBILITIES

The TB/Flight Production Management Office, through its CMO, will schedule and support the MICB function by providing a secretariat for preboard and board meetings, assisting change initiators in the development of change packages, coordinating the receipt and distribution of change directives, establishing and approving the board agenda, maintaining and tracking action items, maintaining the configuration status of mission integration documentation (as shown in appendix A), and providing the Manager, NSTS Integration and Operations, with necessary status and accounting reports.

This CMO should not be confused with other similar offices, such as those connected with the PRCB whose operating authority and procedures are documented elsewhere.

The CMO will accomplish the following:

a. Assign a CR/DIR number for tracking purposes and log the change.

b. Assess the change for format completion. If the change is not filled out with appropriate data, it will be returned to the initiator.

c. Solicit comments/evaluations from other organizations or individuals as requested by the originator. Each reviewer will forward comments/evaluations to the Office of Primary Responsibility (OPR), or the originator as appropriate, so as to be received no later than the due date on the evaluation form. Evaluations which are required are marked "Mandatory." Evaluation distribution to standard reviewers is provided on all CR's going to the MICB, unless otherwise indicated by the PIM/Flight Integration Manager (FIM) (or their designated representatives) for payload/flight-specific CR's or the OPR for other CR's. Normally, evaluation time will be 2 weeks. Exceptions will be determined by the change initiator.

   Any CR not evaluated by the mandatory reviewers will be held in abeyance, with the concurrence of the initiator/OPR, for a future MICB until all mandatory evaluations are received.

d. Distribute agenda (including copies of all scheduled CR's) to all participants 7 working days prior to the MICB.

e. Distribute copies of revised agenda to all board members 2 working days prior to the MICB.

f. Assure the progressive processing of each change number with revision letter as appropriate.

g. Prepare and distribute MICB minutes to all MICB members (and actionees as applicable).

h. Assure that action items resulting from the review/meeting are identified, tracked, and closed. The action items will be forwarded to the appropriate office for completion. Resolutions of actions are to be submitted in writing to the CMO.

The CMO will prepare and maintain an action item status of all actions assigned during any change review meeting. The action item status will indicate the action assigned, due date, and responsibility and status or closeout information, and will be submitted to appropriate personnel on a monthly basis. All actions assigned to specific CR's will be logged and tracked to completion.

i. Process formal letters to the customer from the PIM advising the disposition of CR's relevant to the subject payload. Approval of a PIP CR authorizes CMO to forward the CR with a customer transmittal letter signed by CMO for the PIM.

j. Process approved CR's, as required, into the Payload Integration Library System (PILS).

k. Maintain change control accounting records to include the following:

   1. An up-to-date file for all controlled documents, incorporating all approved CR's and other pertinent data.

   2. Tracking of all changes from CR receipt through release to affected parties and designated recipients as established by the MICB change authority.

   3. A system of reporting and of logging all changes to baselined documentation and maintaining the status and systematic record of approved changes.

   4. Approved CR's (original paperwork).

   5. Working files (changes being evaluated, changes being dispositioned, and CR action items).

   6. Change review/meeting minutes.

   7. A copy of all payload-related ICD's.

   8. A copy of all Preliminary Interface Revision Notices (PIRN's) and Interface Revision Notices (IRN's) which are used to effect ICD changes.

   9. A copy of MICB disposition letters for affected payload CR's.

l. Maintain the Payload Integration Library residing in building 1 at NASA JSC.

m. Verify that the MICB chairperson or the chairperson's representative has formalized all decisions by completing and signing the disposition section of the CR form.

4.1 OPR Responsibilities

An OPR will be designated by the CMO on each CR/PIRN; i.e., TB for flight production schedule CR's, TC for payload PIP, Annex, and Volume XIV CR's, TM for Flight Requirements Document (FRD) and Flight Test and Supplementary Objectives Document (FTSOD) CR's, TJ for ICD PIRN's, etc. OPR responsibility may be delegated by the OPR to others within the organization; e.g., TC may delegate responsibility for specific payload CR's to the PIM or KSC.

Responsibilities of the OPR will include

a. Concur on each assigned CR/PIRN. (Concurrence does not indicate a recommendation of approval of the CR but rather approval to take the CR to the MICB. In fact, disapproval may be recommended by the OPR.)

b. Ensure appropriate mandatory evaluators are designated.

c. Ensure description of change is complete (i.e., reflects current baselined document and provides adequate detail for clarity).

d. Assist presenters with preparation of presentation charts.

e. Ensure mandatory evaluators have responded or that the CR has received adequate screening prior to the board presentation.

f. Inform CMO of which CR's are ready to be placed on the agenda, including walk-ons.

g. The OPR will ensure that the presenter prepares a complete package (viewgraph and 15 copies) for the board presentation. The package will contain

    1. A copy of the CR (if changed since agenda was distributed)

2. Presentation charts showing background, deviations from policy, and issues/recommendations, if required

3. Evaluation summary sheet with applicable comments (viewgraph of individual comments, if necessary)

Any questions regarding OPR's or presentation charts should be forwarded to TB13 at extension 34642.

5.0 DOCUMENT BASELINE AND CHANGE PROCESSING

All requests for baselining or changing requirements documents under MICB authority will be transmitted to TB13/CMO for unclassified documents and to TB12/DOD CMO for classified documents, on an MICB CR/DIR, JSC Form 2408. (Section 5.2 of this document provides details for the completion of this form.)

5.1 Assignment of PIP Numbers, Payload Acronyms, and CR Numbers

The PIP numbers are assigned by the CMO. If a new PIP is being created, the PIM (or his representative) will contact CMO for the number assignment.

The creation of new payload acronyms (or changes to existing acronyms) will first be approved through the TC12/Customer Service Center (CSC) before being introduced into the NSTS payload system in order to prevent duplication and to establish the official nomenclature in the NSTS data base.

Anyone within the STS/customer payload community may write a proposed CR. If the CR is connected with an FRD, it must be submitted to the FIM; for PIP changes, it is submitted to the PIM; for annex changes, it is submitted to the annex manager; for Space Shuttle System Payload Accommodations, NSTS 07700, Volume XIV, and SIP changes, it is submitted to CSC. The FIM, PIM, annex manager (or their designated representatives), and CSC are the only focal points who obtain CR numbers from CMO. No one other than CMO may assign CR numbers.

5.2 CR/DIR Form Completion

All documents to be baselined and changes to the baseline will be documented on a CR/DIR form (refer to figure 5-1a).

The CR/DIR is to be typed per the instructions in figure 5-1a (sheet 2). However, the following apply:

a. Title - This is the title of the CR/DIR and should reflect the most relevant subject in the change or directive.

b. Document(s) Affected - List the document number and the name of the document. If the CR affects a multipart PIP annex, the annex part number must be shown under document affected (e.g., NSTS 14019 Annex 2, Part II). The CMO may be contacted for this information.

c. Cost Impact, Weight Impact, Schedule Impact, Other Impacts - If no inputs are required, use NONE or Not Applicable (N/A). Do not leave these fields blank.

d. Action - This block is used to list any actions required after the CR/DIR has been dispositioned. A CR/DIR originator may indicate an action, if needed, but should consult the CMO on proper wording. The following statement should always be used when a PIP, annex, blank book, or generic CR/DIR is intended to result in the publication of an unclassified document:

   TB13/prepare paperwork and distribution list. Process CR through PILS (010E) for publication and distribution. (Note: If form is being used for baselining a document, substitute DIR for CR in above statement.) If document is new and will be MICB controlled when published and it is not a payload-unique document, add the following: Modify table 6-1 of NSTS 18468 to include this document.

   For FRD or FTSOD CR's/DIR's the following words apply:

   TM/prepare paperwork and distribution list. Process, publish, and distribute.

   Add any other relevant actions in this block, such as actions which depend on approval of the CR/DIR.

e. Date - All signatures MUST be dated.

f. Disposition - The appropriate disposition block must be marked by the final payload and/or JSC approval authority.

g. Description of Change - The preferred way to change a text is to first state the original WAS text, followed by the new IS text. Include the section, paragraph, and page numbers. The difference between the old and new wording must be highlighted (italicized, underlined, or bolded) and/or indicated by two asterisks (**) before and after the modified line(s). Such emphasis is required so that CR reviewers can more easily analyze the changes to the text. Additions or deletions of entire sections/paragraphs do not require highlighting.

   Example: WAS - The payload will be transported to the launch site as soon after landing as possible.

   IS - ** The ASTRO will be transported to the launch site within 1 hr after landing. **

h. Concurrence - The initiating organization (customer or NASA) shall use the left side of the concurrence area to sign/date. Any mandatory overflow concurrences may be placed on the right side.

5.3 CR/DIR Numbering System

This numbering system controls both unclassified and classified CR's as well as DIR's. The FIM, PIM, annex manager, CSC, or their designated representative obtains a tracking log number from CMO which is the single focal point for all CR/DIR number assignments. The CR's initiated by the customer must be submitted to the PIM.

a. Unclassified changes - The following CR/DIR numbering scheme has been designed for the NSTS documentation system by CMO. The DIR to baseline document number NSTS 14019, for example, is assigned P14019-1. Once the document has been baselined, the first CR is P14019-2, with succeeding changes to the document being designated by P14019-3, -4, etc., as described below. When a CR is revised, the same CR number is used but the first revision is indicated by the letter A after the CR number; the second revision, B, etc.

RECORD #	MICB CHANGE REQUEST / DIRECTIVE NASA - Johnson Space Center	PAGE _____ OF _____ DATE

CR/DIR NUMBER:	CHANGE TITLE:

DOCUMENT(S) AFFECTED (NUMBER & TITLE):	PAYLOAD:

COST IMPACT:	WEIGHT IMPACT:	SCHEDULE IMPACT:	OTHER IMPACTS:

DESCRIPTION OF CHANGE:

JUSTIFICATION:

ACTION:

OFFICE OF PRIMARY RESPONSIBILITY (OPR)	DATE	CONCUR ☐ NON-CONCUR ☐

INITIATOR / ORG / MAIL CODE:	DATE	INIT MGT APPROVAL / ORG / MAIL CODE:	DATE

CONCURRENC

	DATE	NSTS MICB Preboard Approval/Mail Code	DATE
	DATE		DATE

DISPOSITION

☐ APPROVED ☐ WITHDRAWN	☐ APPROVED ☐ WITHDRAWN
☐ APPROVED WITH CUSTOMER CHANGES INDICATED	☐ APPROVED WITH NSTS CHANGES INDICATED
☐ APPROVED WITH NSTS CHANGES INDICATED	☐ APPROVED WITH CUSTOMER CHANGES INDICATED
☐ DISAPPROVED	☐ DISAPPROVED

SIGNATURE: PAYLOAD MANAGER	DATE	SIGNATURE: NSTS PROGRAM OFFICE MANAGER	DATE

JSC Form 2408 (Rev Mar 90) (Ethernet Nov 88)

Figure 5-1a.- MICB CR/DIR form (sheet 1 of 3).

1 Scope - The Change Request/Directive will be used to baseline and to propose changes to all documentation.

2 Instructions - The following instructions shall be used in completing the Change Request/Directive.

TYPE OR PRINT CLEARLY IN INK!

BLOCK TITLE	INSTRUCTION
Record Number	Leave blank. This is an arbitrary computer assigned record number.
CR/DIR Number	This number will be assigned by the NSTS Integration and Operations Office, Configuration Mgt. Office (CMO). Call 713-483-4638 or (FTS) 525-4638 for all number assignments, including CR/DIR revision number assignments.
Change Title	Summarize change with descriptive words.
Date	Enter date CR/DIR number is assigned; no other date is acceptable.
Documents Affected	Enter document(s) affected (Number and Title).
Payload	Name or acronym assigned to payload affected by this CR (example: TDRS).
Cost Impact	Estimate cost impact ($).
Weight Impact	Estimate weight impact (lb.)
Schedule Impact	Estimate schedule impact.
Other Impacts	Estimate all other impact (hardware, mission timeline, launch site, crew timeline, thermal, avionics, structures/mechanical, etc.)
Description of Change	Indicate exact wording to be incorporated. Show proposed change by Section, then identify page, paragraph, sentence, or drawing; indicate was/is situation, using the special characters ** (in front of and behind the lines affected in the "is" section) to emphasize actual changed portions, as practical. Use continuation sheets as necessary.
Justification	Indicated justification for proposed change.
Action	For CMO use only. Indicate any followup action needed to implement change; i.e., fabricate hardware, update/distribute documents, run test, etc
Office of Primary Responsibility (OPR)	This block is reserved for the OPR as designated by CMO. It is not required if the originator is also the OPR
Initiator/Org/Mail Code	Initiator's signature, organization, mail code, and date
Initiator Mgmt Approval / Org / Mail Code	Approval signature, organization, mail code, and date as appropriate. Payload: customer initiator's supervisor, if required, or NASA: NSTS Program Office delegated representative
Concurrence	These blocks are reserved for general concurrence. If CR/DIR is payload customer initiated, the appropriate document manager must sign prior to submittal to the NSTS Program Mission Integration Control Board (MICB)
Disposition*	Disposition is indicated in the appropriate box by the authorizing official (Payload Manager in left-hand block, NSTS Program Office authority in right-hand block) at the time the CR/Dir is signed and dated.

*Upon disposition at MICB, impact to appropriate safety document is checked.

Figure 5-1a.- MICB CR/DIR form (sheet 2 of 3).

RECORD #:	MICB CHANGE REQUEST / DIRECTIVE NASA - Johnson Space Center	PAGE _____ OF _____ DATE:
CR/DIR NUMBER	CHANGE TITLE	

JSC Form 2409 (Rev Nov 88)

Figure 5-1a.- MICB CR/DIR form (sheet 3 of 3).

	Document	CR/DIR number (example)
1.	Payload-unique PIP (where P indicates PIP, XXXXX represents the PIP number, and YYY the CR/DIR number which increments from 1)	PXXXXX-YYY
2.	Payload-unique PIP Annex (single part) where A indicates annex and NN the annex number	AXXXXX-ANN-YYY
3.	Payload-unique PIP Annex with more than one part where PT are designated letters that indicate Part, and Z is the actual part number(e.g., 1, 2, 3)	AXXXXX-ANN-PTZ-YYY
4.	Annex with multiple parts and appendices where P is a designated letter that indicates Part, Z is the actual part number, and Q is the volume letter (e.g., A, B, C, D)	AXXXXX-ANN-PZQ-YYY
5.	Annex divided into volumes, where VL are designated letters that indicate volume and Q is the volume letter	AXXXXX-ANN-VLQ-YYY
6.	Annex 9 CR that affects more than one part. This nomenclature is used for the evaluation cycle only. Once dispositioned, new CR's are created against each separate annex part as in 5.3.a.3. RCN's are designated letters denoting Requirements Change Notice.	AXXXXX-A09-RCN-YYY
7.	ICD (where A is a designated letter and XXXX is a sequential number within the ICD system)	AXXXX
8.	Blank Book CR (where B21000 indicates Blank Book and RRR-RRR are fields for unique acronyms determined by the nature of the document).	B21000-RRR-RRR-YYY
9.	Blank Book Annex	B21000-ANN-YYY

10.	Flight Tests and Supplementary Objectives Document (where FTS16725 is the FTSOD document designator)	FTS16725-YYY
11.	FRD (where FRD17462 is the FRD document designation and FF is the flight number)	FRD17462-FF-YYY
12.	Ground Rules and Constraints (Level A)	FRD17462A-FF-YYY
13.	General changes (which cannot be tied directly to a payload or flight document)	GYYYYY
14.	NSTS 07700, Volume XIV	D07700-014-YYY
15.	NSTS 07700, Volume XIV appendices (where LLL is the arabic appendix numeral)	D07700-014-LLL-YYY
16.	Page Change Information Notice (PCIN), where S is a designated letter	SYYYYY
17.	Miscellaneous documents under MICB control (where R is a designated letter)	RXXXXX-YYY

b. Classified changes - The CR/DIR numbering scheme for classified changes is the same as outlined in item a above. However, the CR/DIR number will not be assigned until arrival at TB12/DOD Documentation Office..

5.4 CR Life Cycle

All CR's will be evaluated by appropriate technical offices based on review of the CR content. Once a mission integration document is approved, its contents are considered to be officially baselined as of that time and any changes shall be accomplished under the authority of the MICB.

a. Change evaluation - In order to make changes to a document which requires evaluation, a Change Evaluation Summary Sheet (JSC form 2410), shown in figure 5-1b, is required and will be processed by CMO. The appropriate FIM, PIM, or annex manager (or representative) will designate CR mandatory reviewers.

CR/DIR/PIRN NUMBER	CHANGE EVALUATION SUMMARY SHEET	DISTRIBUTION DATE
CHANGE TITLE		PAYLOAD NAME

SUBMIT COMMENTS TO: _____, NASA/JSC, HOUSTON, TEXAS 77058

DUE DATE: → DATE SCHEDULED FOR MICB:

FOR QUESTIONS: CALL _____ FTS NO _____

INITIAL, DATE, AND CHECK APPROPRIATE BLOCK BELOW

MANDATORY (X)	REVIEWER/EVALUATOR	REVIEW DATE	APPROVE	AP W/CHG	DISAPPROVE	NO COMMENT	SIGNATURE

EVALUATION/RECOMMENDATION *(Please print clearly)*

Figure 5-1b.- Change evaluation summary sheet.

There are two types of CR evaluation flows: CR's which require screening by the MICB preboard and those which do not require preboard. CR's for PIP's, PIP annexes, SIP's, annex blank books, NSTS 07700 Volume XIV, and volume XIV appendices generally require preboard review and are processed according to the flow depicted in figure 5-2. CR's which do not require a preboard include those related to the FRD, FTSOD, general, and PCIN types. These are processed through CMO according to the flow in figure 5-3.

The CMO will transmit the CR Summary Sheet and a copy of the CR to the reviewer community for the nominal evaluation period in figure 5-2 and 5-3. Each reviewer checks the appropriate disposition block on the Summary Sheet, initials and dates the form, and returns it to the CR OPR, or other addressee identified on the summary sheet.

Once all mandatory evaluations/concurrences and comments have been obtained by the OPR, the CR is scheduled for a preboard review.

If mandatory responses are not received by the prescribed due date, it is the CR OPR's responsibility to obtain the remainder of these responses. After statusing the responses, it will be up to the discretion of the appropriate OPR to present the CR to the respective preboard or MICB or to defer it.

b. Preboard - An MICB preboard will be held for screening PIP, PIP annex, SIP, annex blank book, Volume XIV, and Volume XIV appendix related changes in which the TC chairperson or the chairperson's designated appointee reviews comments to the CR. At this time at the discretion of the chairperson, the CR may be dispositioned outside the MICB, based on the delegated authority of the chairperson. If the CR is not dispositioned, it will be placed on the agenda for the upcoming board unless the initiator or OPR requests CMO to take other action (withdraw, hold, defer to later MICB, etc.).

c. The MICB - The CR will be dispositioned at this forum unless it is dispositioned outside the board as indicated above. A formal board will be scheduled only when a minimum of five CR's are to be considered or when less than this number are deemed urgent enough to convene an MICB. TM, TC, and TJ will be consulted before cancellation of an MICB. The CR's originated by the customer that are approved with

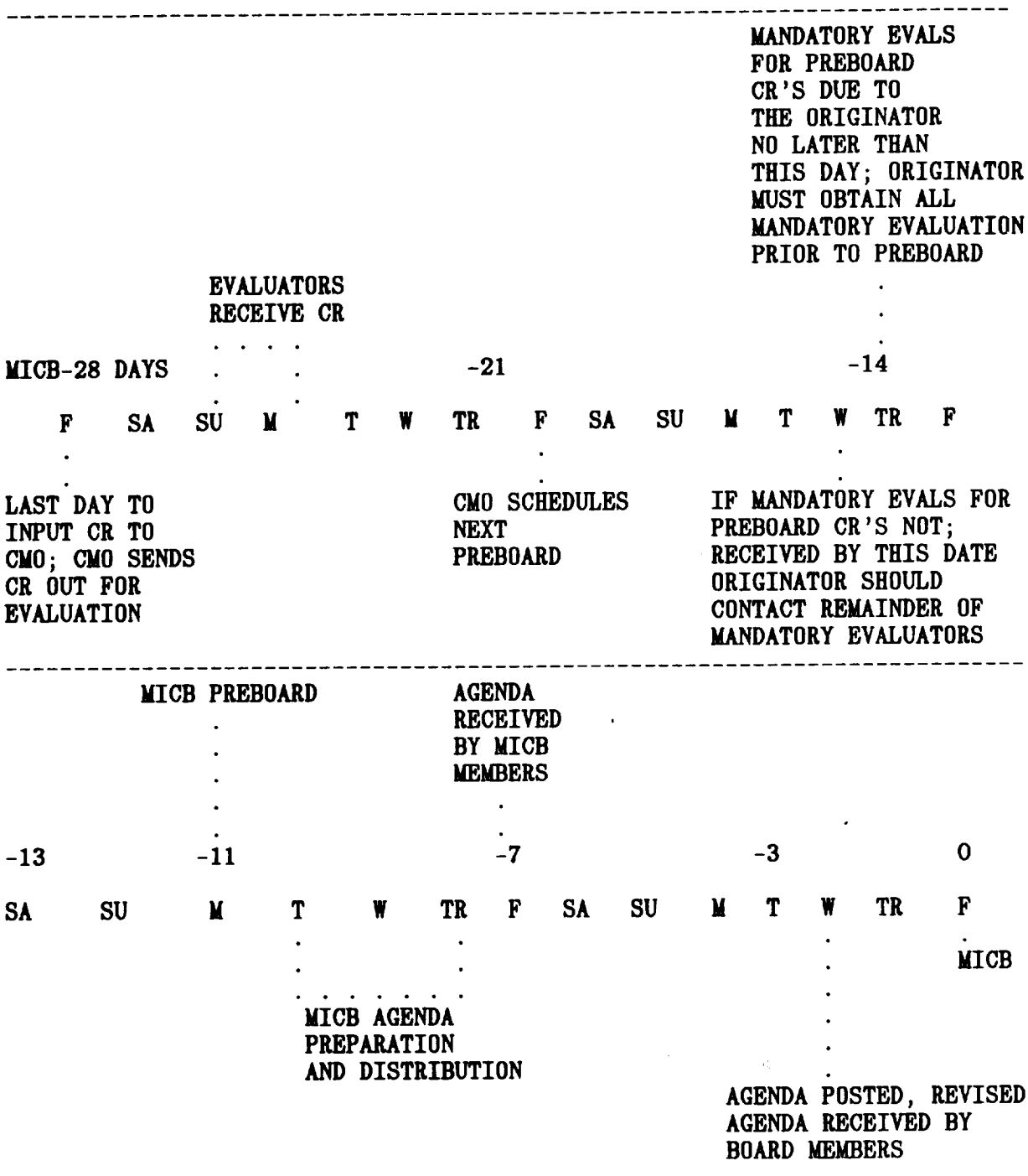
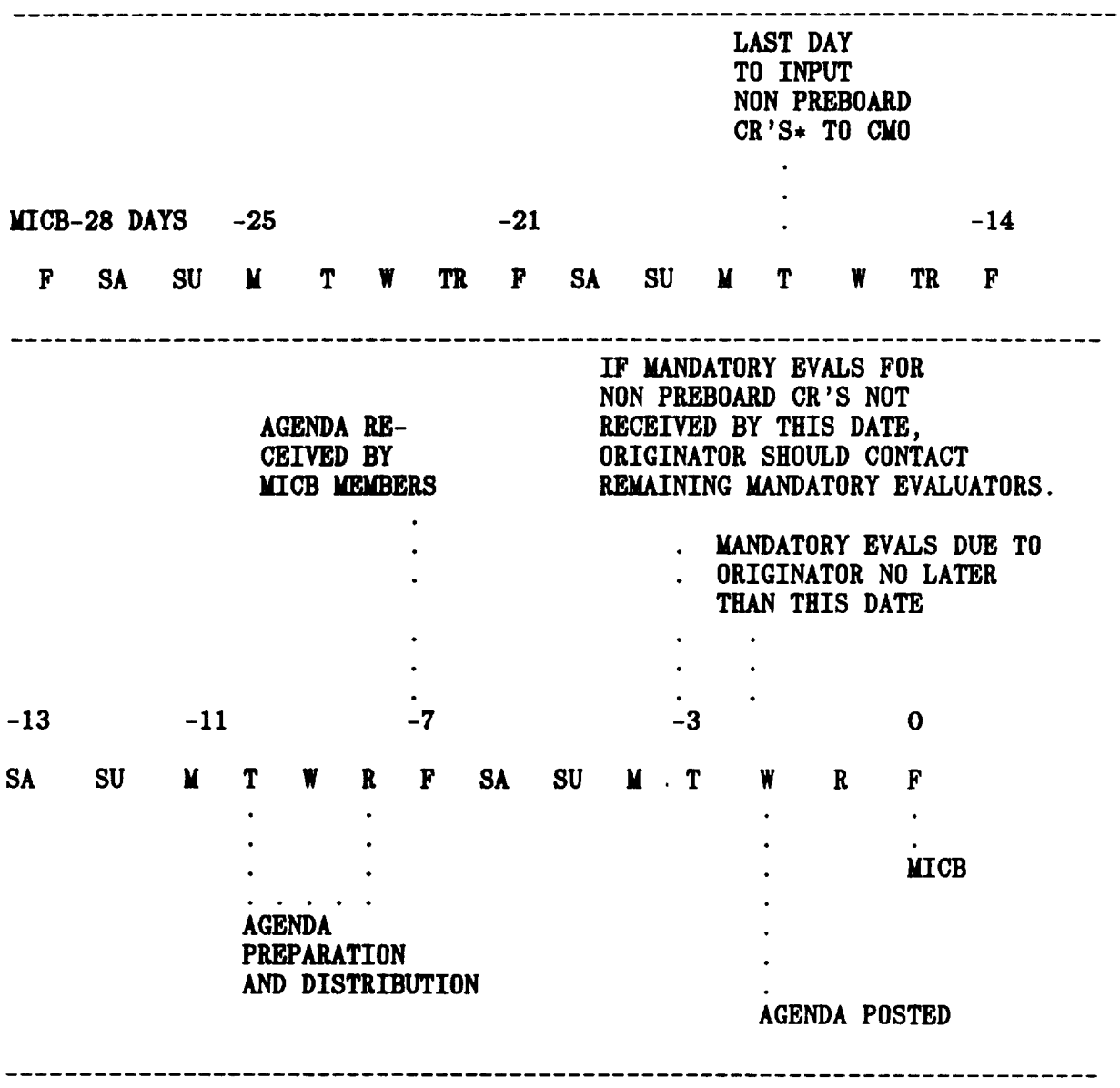


Figure 5-2.- Evaluation flow for CR's requiring MICB preboard review.



*FRD, FTSOD, General, Flight Production Schedules, PCIN-type CR's

Figure 5-3.- Evaluation flow for CR's that do not require MICB preboard.

changes are returned for customer reevaluation and approval. A copy of a CR approved by the MICB is sent to the customer along with a letter indicating that it will be incorporated in the next revision to the document. If disapproved, a customer-initiated CR is sent to the customer indicating termination of the CR. Disapproved CR's originated by the NSTS will not be sent to the customer unless requested by the originator.

The PIP and annex CR's originated by the NSTS and approved by the MICB will be submitted to the customer for approval.

A CR may be withdrawn by the originator prior to its joint disposition.

d. The CR changes between NSTS and customer - A CR may go back and forth between the NSTS and the customer until such time that the extent of the text modifications is so great as to require a revision of the CR. A CR must always initially leave the originating center signed (at the payload program management level) and dated along with the appropriate disposition block checked.

   For example, assume the following case: A CR is originated by the customer with the payload Approval block marked, is signed and dated, and is sent to JSC. The NSTS approves with changes, marks the appropriate block, signs and dates, and resubmits to the customer. The customer now makes additional changes (using a different color ink), checks the payload Approve With Change block, initials and dates next to that block, and returns to the NSTS. If the NSTS approves all the new customer changes, the NSTS Approve block is checked, initialed, and dated. If the NSTS then desires additional changes, a Revision A to the CR will be written with the most recent published wording forming the basis of the IS version of the text.

e. Closing a CR - The CR's approved by the appropriate parties are to be returned to CMO (original paperwork only). Those requiring joint NSTS/customer approval (such as PIP CR's) cannot be closed until both parties approve or until one or the other has disapproved or withdrawn the CR. The CMO will forward a copy of approved NSTS 07700, Volume XIV, CR's to the CSC.

6.0 PAYLOAD AND FLIGHT INTEGRATION DOCUMENTATION PROCEDURES

These procedures contain the official guidelines for preparing and publishing NSTS documents and changes to them, including PIP, PIP annex, blank book, FRD, FTSOD and generic document types. If a document is part of a multipart publication, such as PIP annexes 2 and 9, the unique parts to that document may now be published separately. Annex 8 is controlled and published by the NASA KSC and will not be dealt with in this document.

Table 6-1 reflects the NSTS documents which are dispositioned by the MICB or others as shown. The letter R is used to signify the NSTS office(s) whose technical review and evaluation is required prior to being submitted to the MICB for disposition. The letter C denotes the designated office(s) whose concurrence is (are) required prior to disposition. The table depicts concurrences and/or the minimum mandatory evaluation required prior to processing.

6.1 Preliminary PIP or Annex Preparation

The first phase in document building is the initial text.

a. A preliminary document will be created using the blank book for that category of documentation. (See table 6-1 for a list of blank books.) Copies of blank books may be obtained from CMO.

b. A complete red-lined draft of the preliminary document should be submitted to the NSTS document control area (contact CMO for precise location). All documents should be marked using red ink only. Make sure the copy is the most recent version of that document. The originator must prepare a STSOC Documentation Work Request to process the work requirements (contact CMO for further information). The originator may sign the work request for a draft document (NASA division chief level required for a publishable version).

   Note: Documents created on word processors outside the PILS should be submitted to PILS for a draft document, prior to submission of the baselining CR through the review cycle.

c. After a preliminary red-lined version is sent to the unclassified PIP documentation area for processing, the originator(s) will be contacted as required for clarification.

Table 6-1.- NSTS PAYLOAD INTEGRATION DOCUMENT APPROVAL MATRIX (Continued)

	(TB)	(TJ)	(TC)	(TM)	(TA)	MICB	Other
3. Shuttle Orbiter/ Spacelab Module Interface Definition Document NSTS 21000-IDD-SL		C	C		A		EB-R KSC-R
4. Shuttle Payload IDD for Small Payload Accommo-dations NSTS 21000-IDD-SML		R	R			A	EB-R KSC-R
5. Shuttle Payload Interface Definition Document for Middeck Payload Accommo-dations NSTS 21000-IDD-MDK		R	R	R		A	EB-R SP33-R
6. Shuttle Payload Interface Definition Document for Stand-ard Accom-modations NSTS 21000-IDD-STD		R	R			A	EB-R KSC-R

Table 6-1.- NSTS PAYLOAD INTEGRATION DOCUMENT APPROVAL MATRIX

Definition of key letters
A = Approval of CR
C = Concurrence required prior to disposition
R = Evaluation required prior to being submitted to MICB

	(TB)	(TJ)	(TC)	(TM)	(TA)	MICB	Other
a. NSTS PROGRAM DOCUMENTATION STANDARD/BLANK BOOKS							
1. NSTS 07700, Volume XIV, Space Shuttle Systems Payload Accommodations and Appendices 1-10	R	R	R	R		A	KSC-C
2. Shuttle Orbiter/ Cargo Standard Interfaces, NSTS 07700, Vol. XIV, Atch. 1 ICD 2-19001		C	C	C	C		EB-R KSC-C PRCB-A

Table 6-1.- NSTS PAYLOAD INTEGRATION DOCUMENT APPROVAL MATRIX (Continued)

	(TB)	(TJ)	(TC)	(TM)	(TA)	MICB	Other
7. Shuttle/Payload Standard Integration Plan for Deployable-type Payloads NSTS 21000-SIP-DEP	R (schedule only)	R	R	R		A	KSC-R (sections 3, 4, 5, 6, 9, 11)
8. Shuttle/Payload Standard Integration Plan for Deployable/Retrievable-type Payloads NSTS 21000-SIP-DRP	R (schedule only)	R	R	R		A	KSC-R (sections 3, 4, 5, 6, 9, 11)
9. Shuttle/Payload Standard Integration Plan for Attached Payloads NSTS 21000-SIP-ATT	R (schedule only)	R	R	R		A	KSC-R (sections 3, 4, 5, 6, 9, 11)
10. Shuttle/Payload Standard Integration Plan for Middeck-type Payloads NSTS 21000-SIP-MDK	R (schedule only)	R	R	R		A	KSC- R (sections 3, 4, 5, 6, 9, 11)

Table 6-1.- NSTS PAYLOAD INTEGRATION DOCUMENT APPROVAL MATRIX (Continued)

	(TB)	(TJ)	(TC)	(TM)	(TA)	MICB	Other
11. Shuttle/Payload Standard Integration Plan for DOD Deployable/ Retrievable-type Payloads NSTS 21000-SIP-DOD	R (schedule only)	R	R	R		A	R KSC-TP (sections 3, 4, 5, 6, 9, 11)
12. Shuttle/Payload Standard Integration Plan for Small Payload Accommodations NSTS 21000-SIP-SML	R (schedule only)	R	R	R		A	KSC-R (sections 3, 4, 5, 6, 9, 11)
13. Shuttle/Payload Standard Integration Plan for Payload Specialist Payloads NSTS 21000-SIP-PSP	R (schedule only)	R	R	R		A	KSC-R (sections 3, 4, 5, 6, 9, 11)
14. Shuttle/Pay load Standard Integration Plan for Get-Away Special Payloads NSTS 21000-SIP-GAS	R (schedule only)	R	R	R		A	KSC-R (section 3, 4, 5, 6, 9, 11)

Table 6-1.- NSTS PAYLOAD INTEGRATION DOCUMENT APPROVAL MATRIX (Continued)

	(TB)	(TJ)	(TC)	(TM)	(TA)	MICB	Other
15. Shuttle/Payload Standard Integration Plan for Spacelab (Non-MSFC managed) NSTS 21000-SIP-SLB	R (schedule only)	R	R	R		A	KSC-R (section 3, 4, 5, 6, 9, 11)
16. Shuttle/Payload Standard Integration Plan for Spacelab (MSFC-managed) NSTS 21000-SIP-SLM	R (schedule only)	R	R	R		A	KSC-R (section 3, 4, 5, 6, 9, 11)
b. MISSION DOCUMENTS							
1. FDRD	C	C	C	C	C		PRCB-A KSC-C
2. FRD (blank book and flight specific)		R	R	C A*		A	
3. FTSOD		C	C	C A*		A	
4. FRD/FTSOD (changes)		R	R (FRD only)	C A*		A	

Table 6-1.- NSTS PAYLOAD INTEGRATION DOCUMENT APPROVAL MATRIX (Continued)

	(TB)	(TJ)	(TC)	(TM)	(TA)	MICB	Other
5. STS-XX FRD Level A Ground Rules and Constr. NSTS 17462A-XX (baseline and changes)			R	C A*		A	
6. STS Operational Flt Design Std. Ground Rules and Constr. NSTS 21075 (baseline and changes)			R	C		A	
7. Data Requirements for Payload verification Requirements NSTS 14046		R	R	R		A	KSC-R
c. PAYLOAD-SPECIFIC AND BLANK BOOK DOCUMENTS							
1. PIP (baseline)	C (schedule only)	C	C	C	C		GA-A KSC-C

Table 6-1.- NSTS PAYLOAD INTEGRATION DOCUMENT APPROVAL MATRIX (Continued)

	(TB)	(TJ)	(TC)	(TM)	(TA)	MICB	Other
2. PIP (changes)	R (schedule only)	R	C	R		A	EB-R KSC- R (sections 3, 4, 5, 6, 9, 11, 13)
3a. Annex 1 - Payload Data Annex (baseline)		A (payload specific) C (blank book)	C (PIM)			 A (blank book)	EB-R KSC-R
3b. Annex 1 changes		A (payload specific)	R	R		A (blank book)	EB-R Annex Mgr-C (blank book) KSC-R
4a. Annex 2 - Flight Planning Annex (baseline)			C (PIM)	A (payload specific) R (blank book)		 A (blank book)	
4b. Annex 2 changes			R	R		 A (blank book)	Annex Mgr-A (payload specific) Annex Mgr-C (blank book)

Table 6-1.- NSTS PAYLOAD INTEGRATION DOCUMENT APPROVAL MATRIX (Continued)

	(TB)	(TJ)	(TC)	(TM)	(TA)	MICB	Other
5a. Annex 3 - Flight Operations Annex (baseline)			C (PIM)	A (payload specific) R (blank book)		A (blank book)	
5b. Annex 3 changes			R	R		A (blank book)	Annex Mgr-A (payload specific) Annex Mgr-C (blank book)
6a. Annex 4 - Command and Data Annex (baseline)		A (payload specific) R (blank book)	C (PIM)			A (blank book)	KSC-R
6b. Annex 4 changes		R	R			A (blank book)	Annex Mgr-A (payload specific) Annex Mgr-C (blank book) KSC-R
7a. Annex 5 - POCC Annex (baseline)			C (PIM)	A (payload specific) R (blank book)		A (blank book)	

Table 6-1.- NSTS PAYLOAD INTEGRATION DOCUMENT APPROVAL MATRIX (Continued)

	(TB)	(TJ)	(TC)	(TM)	(TA)	MICB	Other
7b. Annex 5 changes			R	R		A (blank book)	Annex Mgr-A (payload specific) Annex Mgr-C (blank book)
8a. Annex 6 - Crew Compartment Annex (baseline)		A (payload specific) R (blank book)	C (PIM)			A (blank book)	Annex Mgr C (payload specific) Annex Mgr-C (blank book)
8b. Annex 6 changes		R	R			A (blank book)	Annex Mgr-A (payload specific) Annex Mgr-C (blank book)
9a. Annex 7 - Training Annex (baseline)			C (PIM)	A (payload specific) R (blank book)		A (blank book)	

Table 6-1.- NSTS PAYLOAD INTEGRATION DOCUMENT APPROVAL MATRIX (Continued)

	(TB)	(TJ)	(TC)	(TM)	(TA)	MICB	Other
9b. Annex 7 changes			R	R		A (blank book)	Annex Mgr-A (payload specific) Annex Mgr-C (blank book)
10a. Annex 9 - Payload Verification Requirements		C (payload specific)	C (PIM)			A (payload specific)	KSC-R EB-R (payload specific)
Annex (baseline)		R (blank book)				A (blank book)	
10b. Annex 9 changes		C (payload specific)	R			A (payload specific) A (blank book)	KSC-R EB-R (payload specific)
11a. Annex 11 - EVA Annex (baseline)			C (PIM)	A (payload specific) R (blank book)		A (blank book)	

Table 6-1.- NSTS PAYLOAD INTEGRATION DOCUMENT APPROVAL MATRIX (Concluded)

	(TB)	(TJ)	(TC)	(TM)	(TA)	MICB	Other
11b. Annex 11 changes			R	R			Annex Mgr-A (payload specific) Annex Mgr-C (blank book)
						A (blank book)	
12. Payload-specific ICD (baseline)		A	C				EB-C KSC-R
13. Payload-specific ICD (changes)		A	C				EB-C

EB = Cargo Integration Engineering Office
GA = Office of the Deputy Director, NSTS Program
TA = NSTS Integration and Operations Office
KSC = KSC-CP (Payloads Projects Management) and
KSC-TP (Shuttle Operations)
TB = Flight Production Management Office
TC = Customer Integration Office
TJ = Cargo Engineering Office
TM = Mission Integration Office

*For editorial changes, changes with minimal impact to the flight production process, or to implement previously approved changes (FDRD, PRCBD, CIR, CIRD, Flight Planning and Stowage Review (FPSR), Flight Integration Assessment Baseline (FIAB))

d. If additional changes are made after the preliminary version is completed, the originator must resubmit with a new work request.

6.2 PIP Baseline Process

A PIP is baselined following a series of review meetings between the customer and the NSTS (see figure 6-1a for a flow diagram). A preliminary document is generated as outlined in section 6.1 which is cycled between the PIM and the customer until both agree with its content. At that point the NSTS conducts internal reviews to ensure JSC and KSC approval. The PIP is then approved and baselined in the following manner:

a. After internal NSTS review is complete, the PIM prepares a transmittal letter and obtains NSTS signature on the letter and the PIP title sheet (see figure 6-1b). The title sheet and a copy of the document are forwarded to the customer via the transmittal letter. The customer signs and returns the original title sheet to JSC. Reproduced or facsimile copies are not legally acceptable.

b. After receipt of the signed title sheet, the PIM (or PIM representative) contacts the CMO to obtain the baseline DIR number, and prepares the CR/DIR form. A sample baseline DIR is shown in figure 6-1c. The PIM (or PIM representative) signs and dates in CR/DIR location no. 1. (See figure 6-2 for all references to signature locations.) The PIM's management signs/dates in location no. 2. If the PIM is not the originator, a PIM concurrence is required in location no. 6 (OPR). The Manager, Customer Integration Office then signs/dates the DIR in location no. 4 with the appropriate block checked. No customer signature is required on this baseline DIR.

c. Once the DIR is approved, the PIM provides the original DIR, original title sheet, a copy of the document as approved, and a distribution list to CMO. The CMO submits the baseline PIP for publication.

The official baseline date is defined as the date of the last signature on the PIP title sheet.

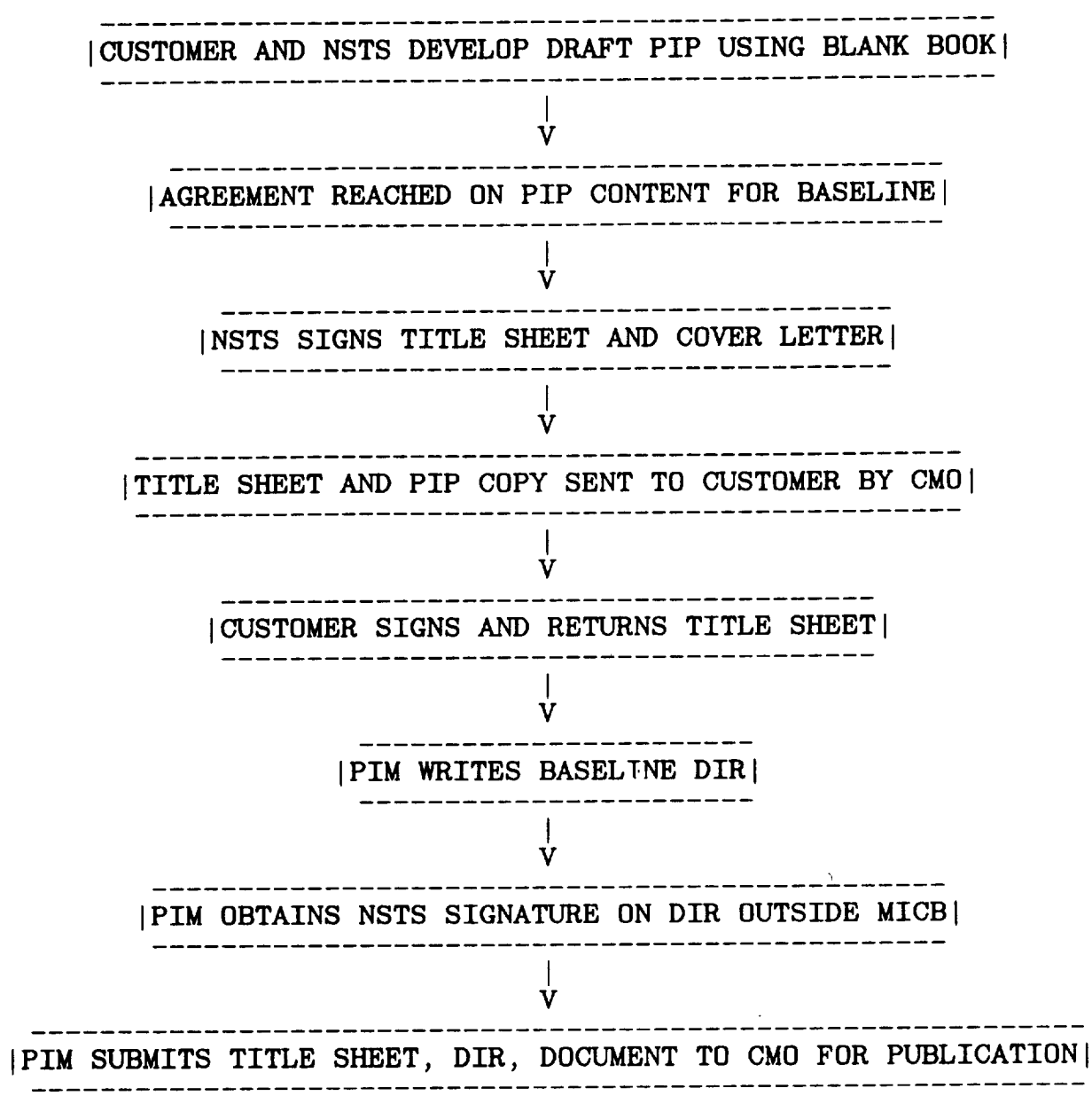


Figure 6-1a.- PIP Baseline Process:
basic PIP flow diagram.

PAYLOAD INTEGRATION PLAN

NATIONAL SPACE TRANSPORTATION SYSTEM

AND

SPACE STATION HEAT PIPE ADVANCED RADIATOR ELEMENTS II

OCTOBER 13, 1989

APPROVED:

Date 11/24/89 Date

NATIONAL SPACE TRANSPORTATION SYSTEM PROGRAM

MISSION MANAGER SHARE-II
FLIGHT PROJECTS OFFICE
NASA-JOHNSON SPACE CENTER

Figure 6-1b.- Example of a PIP title sheet.

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NASA - Johnson Space Center

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CR/DIR NUMBER	CHANGE TITLE	DATE
P21151-01	BASELINE SHARE II PIP	NOV. 28, 1989

DOCUMENT(S) AFFECTED (NUMBER & TITLE)
NSTS 21151 SPACE STATION HEAT PIPE ADVANCED RADIATOR ELEMENTS II (SHARE II) PIP

PAYLOAD: SHARE II

SEQUENCE NO.:

COST IMPACT	WEIGHT IMPACT	SCHEDULE IMPACT	OTHER IMPACTS
NONE	NONE	NONE	NONE

DESCRIPTION OF CHANGE:

Handcarried 12/8/89 R

BASELINE THE SHARE-II PIP

BASELINE DATE 11-29-89

JUSTIFICATION

THE SHARE-II PIP HAS BEEN SIGNED BY NSTS AND THE CUSTOMER.

ACTION
FORWARD TO TB13/CMO FOR DISTRIBUTION AND INCORPORATION INTO PILS

INITIATOR/ORGANIZATION	DATE	ORGANIZATION APPROVAL	DATE
TC4/S. A. Kamen Susan A. Kamen	11/29/89	TC4/R. M. Swalin Richard M. Swalin	11/30/89

CONCURRENCE

	DATE		DATE
	DATE		DATE

DISPOSITION

☐ APPROVED	☐ WITHDRAWN	☒ APPROVED	☐ WITHDRAWN
☐ APROVED WITH CHANGES INDICATED		☐ APROVED WITH CHANGES INDICATED	
☐ DISAPPROVED		☐ DISAPPROVED	

SIGNATURE OF PAYLOAD MANAGER	DATE	SIGNATURE OF NSTS PROGRAM OFFICE MANAGER	DATE
		T. J. Lueders for	12/5/89

JSC Form 2408 (Rev Feb 88) (Ethernet Feb 88)

Figure 6-1c.- Example of a baseline CR.

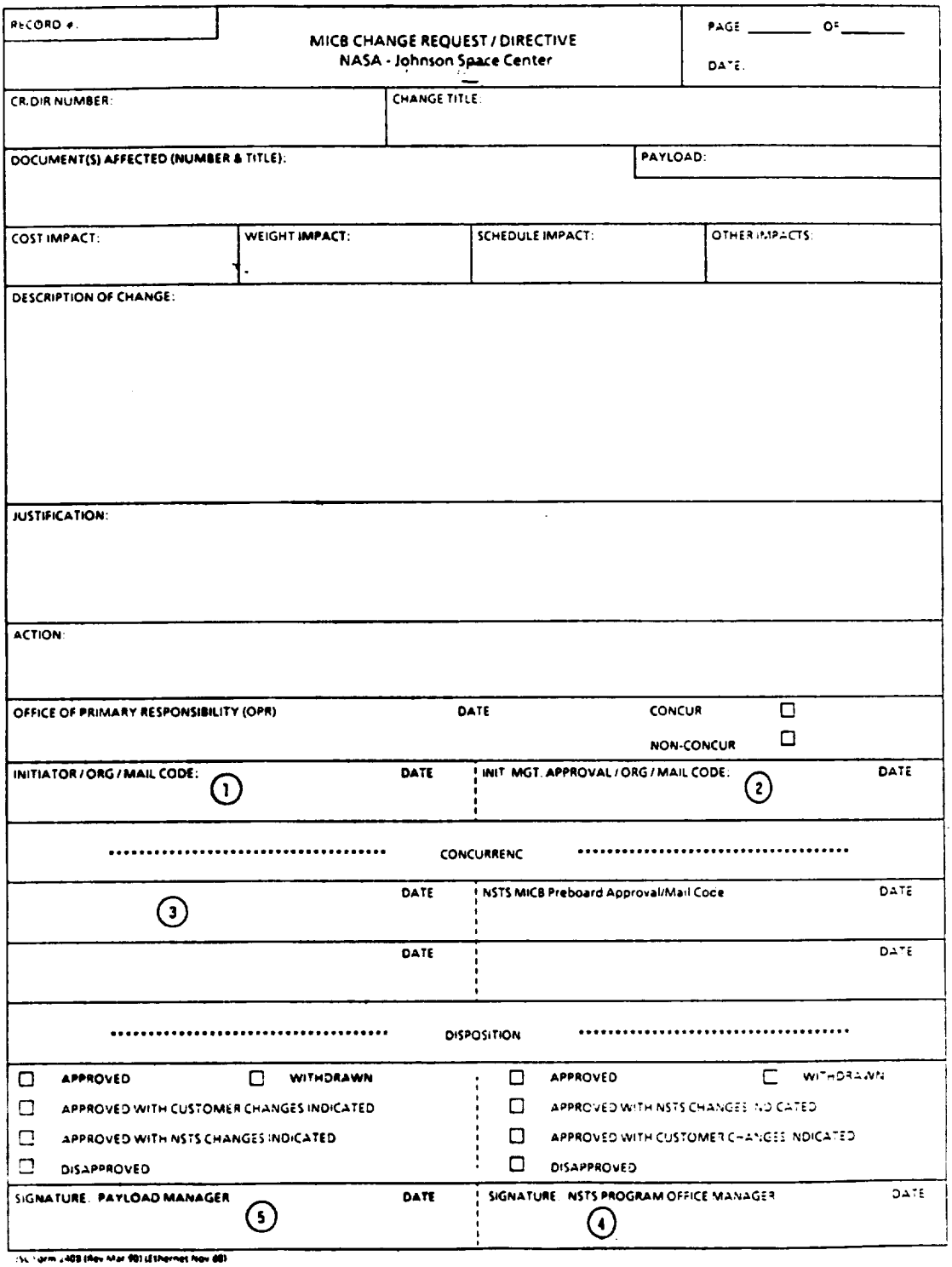

Figure 6-2.- Key to signature locations on CR form.

6.3 PIP Change Process

Once baselined, a PIP can only be changed through the CR process. This flow is depicted in figure 6-3 and described in the following paragraphs. An example CR for a PIP change is shown in figure 6-4. This process is also used when issuing a PIP revision.

The originator fills out a CR/DIR form per section 5.2 and signs/dates the CR in location no. 1, as indicated in figure 6-2 (this figure is to be used for all references to CR signature locations in this section). The originator's management signs/dates the CR in location no. 2. For customer-originated CR's, the designated customer payload manager must also sign/date the CR in location no. 5 with the approved block checked, prior to forwarding the CR to JSC.

After the required signatures are received, the originator will send the original CR to the PIM for unclassified changes and to JSC/TB12 (DOD CMO) for classified changes. For unclassified changes the PIM (or PIM representative) will obtain a CR number from CMO and forward the original CR to CMO. The DOD CMO will assign CR numbers to classified CR's.

The proposed CR will then be processed according to section 5.4 of this document.

6.4 PIP Annex Baseline Process

The process for baselining a PIP annex (except annex 8) is illustrated in figure 6-5. First, an annex input is generated by the customer and forwarded to the PIM at JSC. This input is sent to the annex manager who develops the annex which is then reviewed by the NSTS. A CR/DIR is always required to be written to formally establish the annex. An example baseline DIR is shown in figure 6-6. The DIR to baseline an annex is originated by the NSTS.

The JSC originator obtains the appropriate signatures/dates in locations no. 1 and no. 2 (see fig. 6-2) on the CR/DIR form and forwards the DIR to the annex manager. The annex manager obtains the CR/DIR number from CMO and forwards a copy to the CMO.

The annex manager then coordinates NSTS review of the draft and CR/DIR. The annex manager sends the annex, a copy of the DIR,

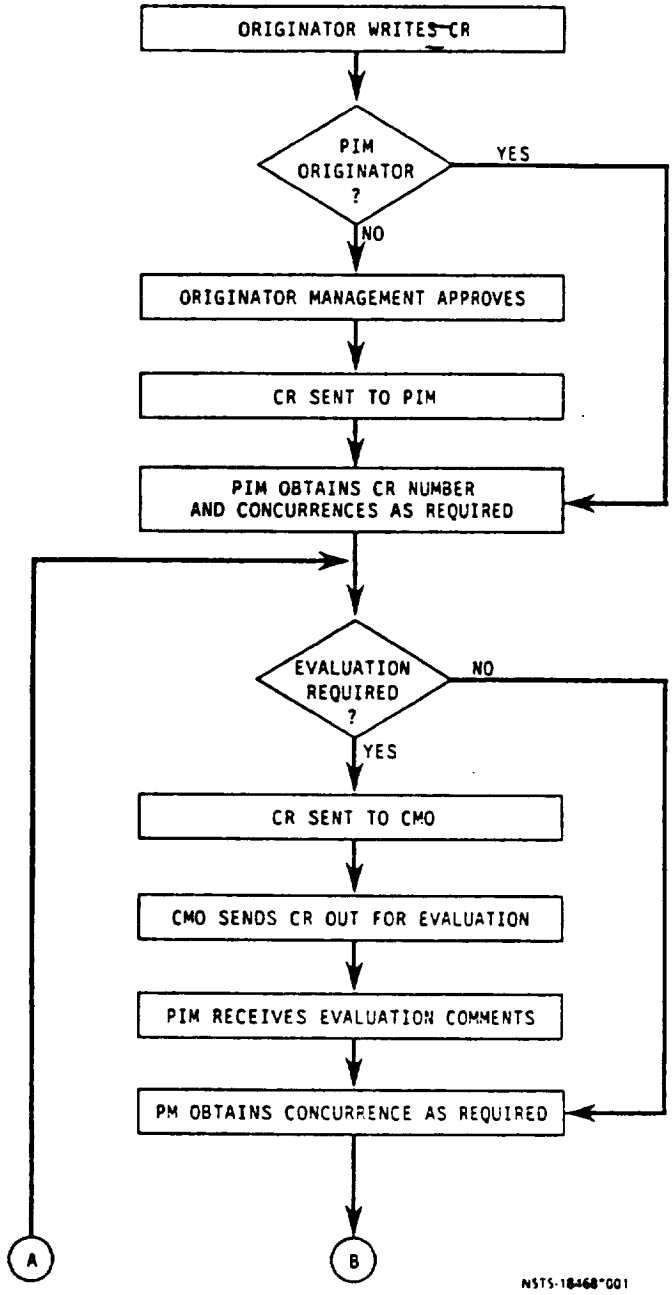

Figure 6-3.- Flow chart for changes to a PIP or issuance of a PIP revision (sheet 1 of 2).

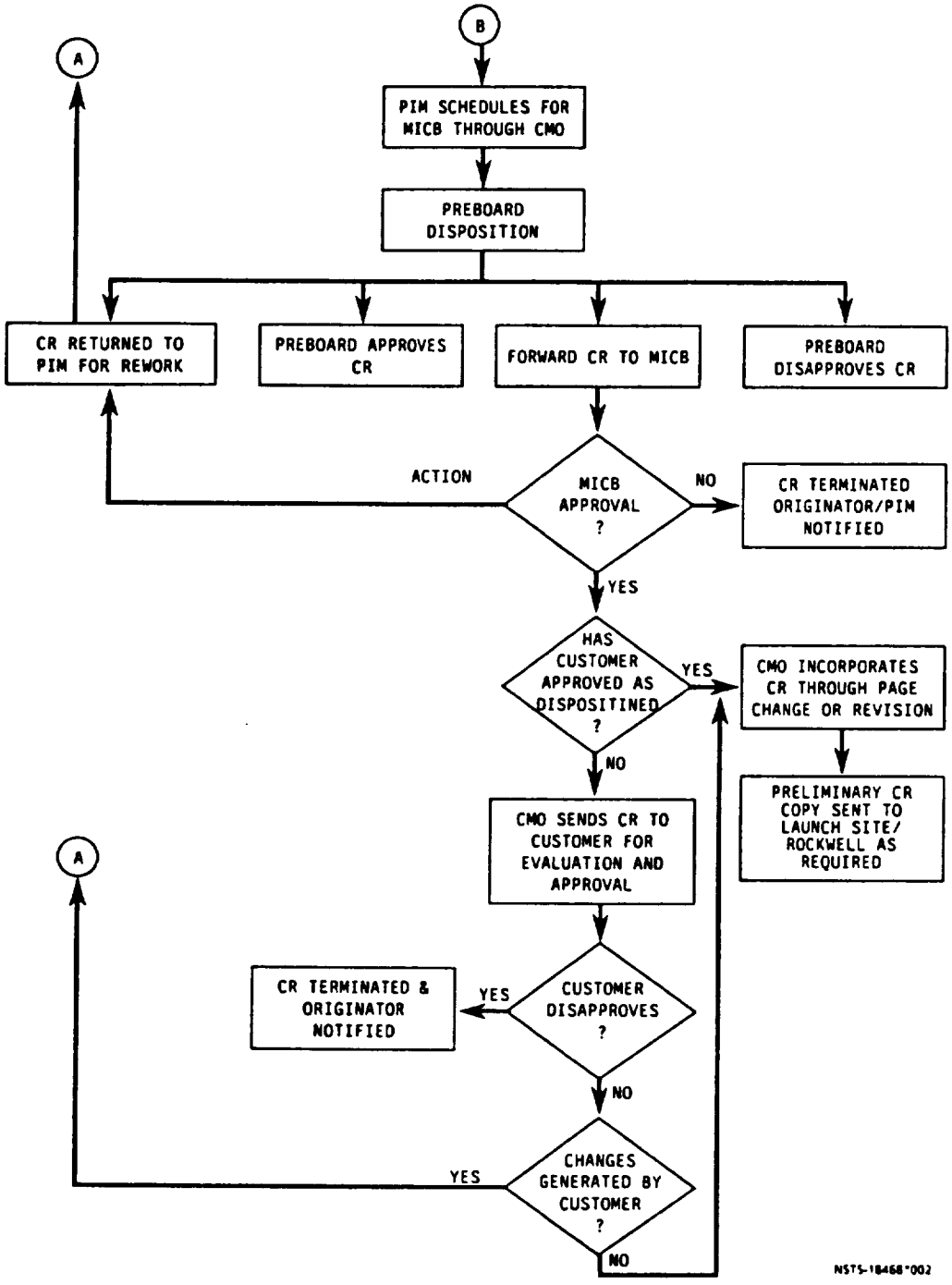

Figure 6-3.- Flow chart for changes to a PIP or issuance of a PIP revision (sheet 2 of 2).

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CR/DIR NUMBER	CHANGE TITLE	DATE
P14075-32	Centaur Keel Bridge	4/3/87

DOCUMENT(S) AFFECTED (NUMBER & TITLE)	PAYLOAD: GRO SEQUENCE NO.:
JSC-14075 GRO PIP	

COST IMPACT	WEIGHT IMPACT	SCHEDULE IMPACT	OTHER IMPACTS
$6.6K	None	None	None

DESCRIPTION OF CHANGE:

6.1 Structural Loads and Deflections

Add following paragraph:

The STS will define the Centaur Keel Bridge load capability for GRO keel locations Xo = 1214.53" and Xo = 1218.47". The STS will perform clearance compatibility assessment of GRO using the Centaur Keel Bridge at Bay 12 locations. The load capability and clearance compatibility will be performed as an optional service.

JUSTIFICATION

Enclosed correspondence.

ACTION

TJ/L. E. Bell approve payload/cargo integration delta task.

INITIATOR/ORGANIZATION	DATE	ORGANIZATION APPROVAL	DATE
Sandy N. Bauer		F. E. Zuleta	4/3/87

CONCURRENCE

	DATE		DAT
	4/3/87		
	DATE		DAT

DISPOSITION

☐ APPROVED ☐ WITHDRAWN	☒ APPROVED ☐ WITHDRAWN
☐ APPROVED WITH CHANGES INDICATED	☐ APPROVED WITH CHANGES INDICATED
☐ DISAPPROVED	☐ DISAPPROVED

SIGNATURE OF PAYLOAD MANAGER	DATE	SIGNATURE OF NSTS PROGRAM OFFICE MANAGER	DA
			4/3

Figure 6-4.- Example of PIP update CR.

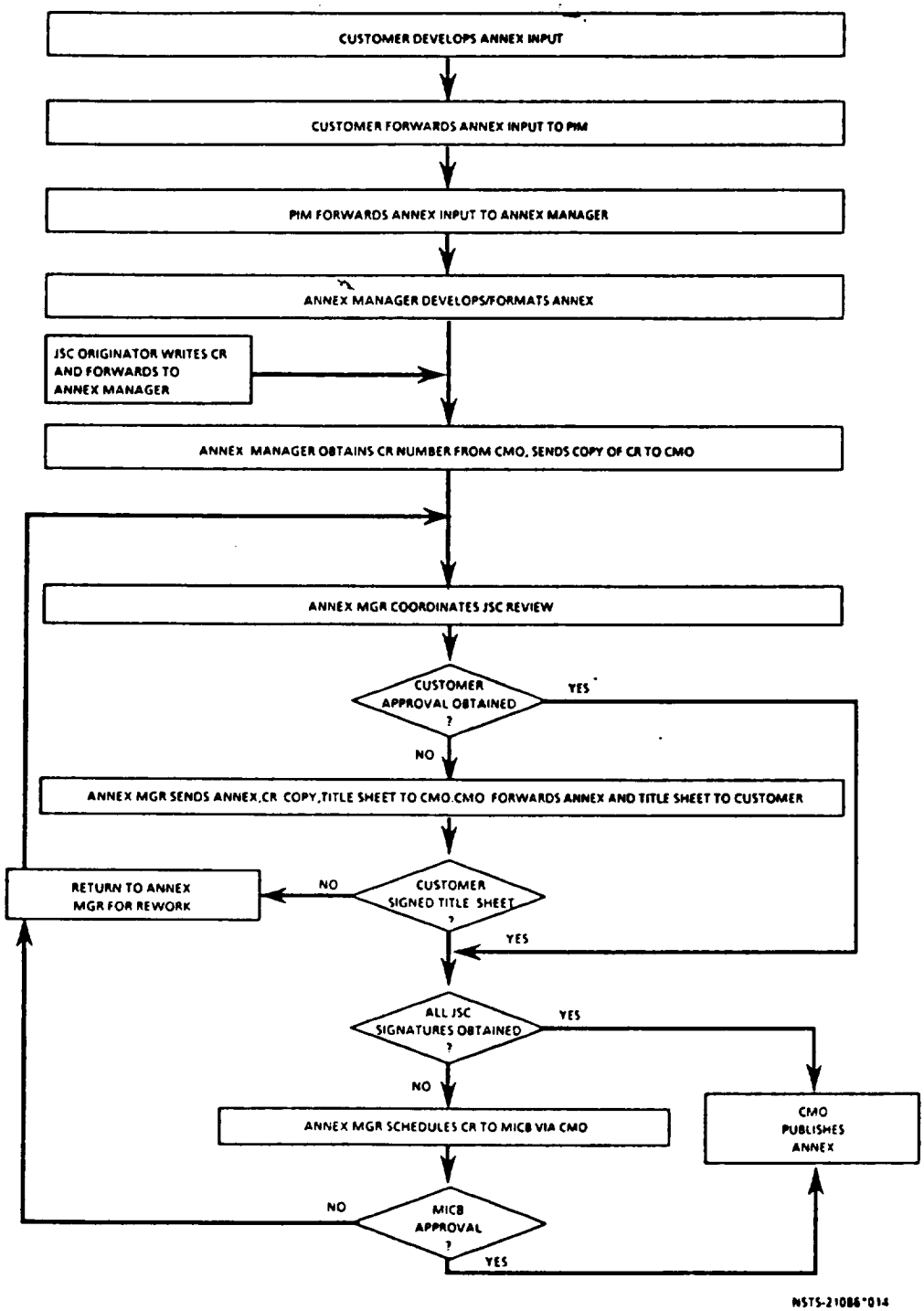
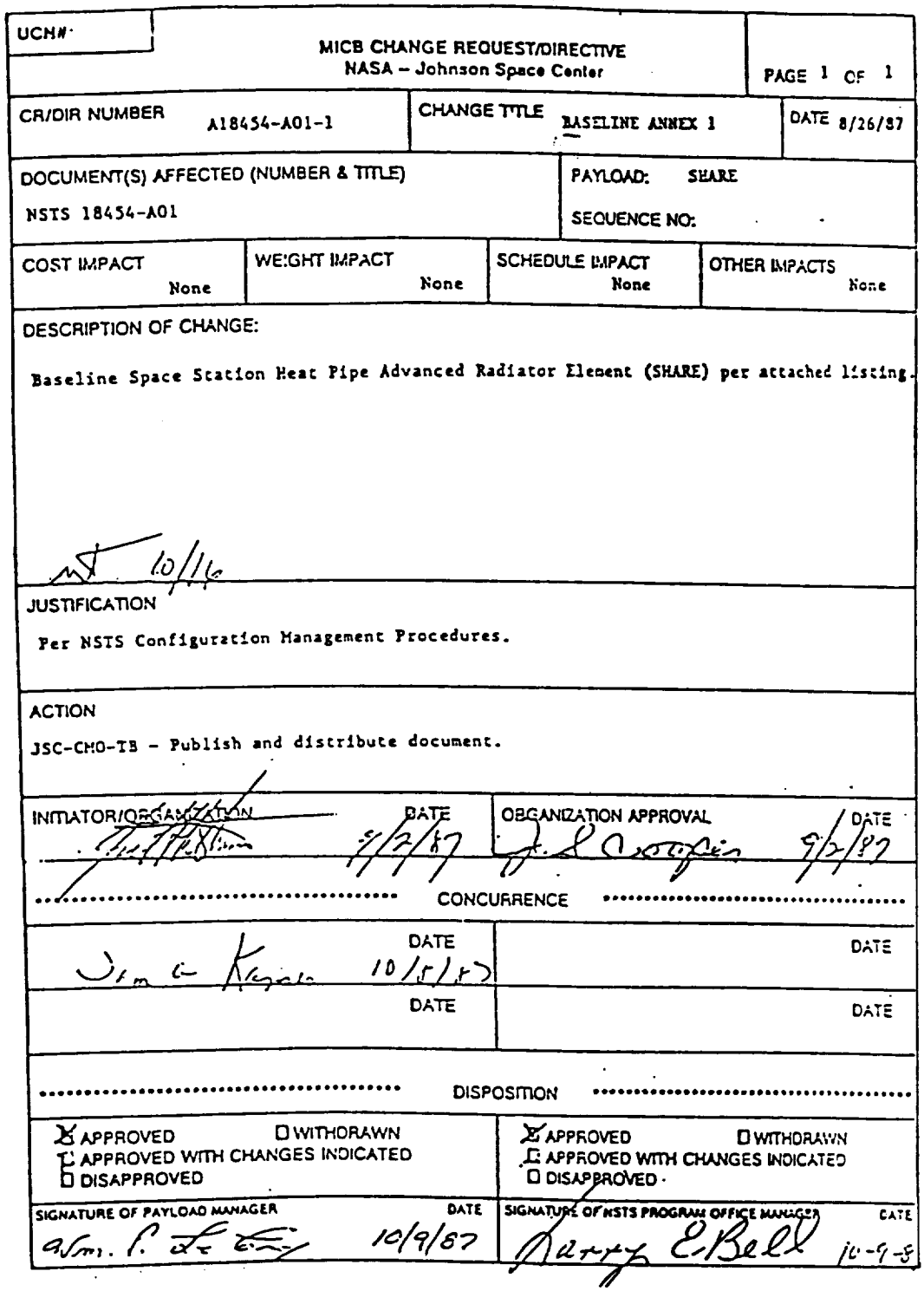


Figure 6-5.- Annex baseline flow chart.



UCN#

MICB CHANGE REQUEST/DIRECTIVE
NASA – Johnson Space Center

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CR/DIR NUMBER	CHANGE TITLE	DATE
A18454-A01-1	BASELINE ANNEX 1	8/26/87

DOCUMENT(S) AFFECTED (NUMBER & TITLE)
NSTS 18454-A01

PAYLOAD: SHARE
SEQUENCE NO:

COST IMPACT	WEIGHT IMPACT	SCHEDULE IMPACT	OTHER IMPACTS
None	None	None	None

DESCRIPTION OF CHANGE:

Baseline Space Station Heat Pipe Advanced Radiator Element (SHARE) per attached listing.

10/16

JUSTIFICATION

Per NSTS Configuration Management Procedures.

ACTION

JSC-CM0-TB - Publish and distribute document.

INITIATOR/ORGANIZATION	DATE	ORGANIZATION APPROVAL	DATE
	9/2/87		9/2/87

CONCURRENCE

	DATE		DATE
	10/5/87		
	DATE		DATE

DISPOSITION

☒ APPROVED ☐ WITHDRAWN ☐ APPROVED WITH CHANGES INDICATED ☐ DISAPPROVED	☒ APPROVED ☐ WITHDRAWN ☐ APPROVED WITH CHANGES INDICATED ☐ DISAPPROVED
SIGNATURE OF PAYLOAD MANAGER — DATE: 10/9/87	SIGNATURE OF NSTS PROGRAM OFFICE MANAGER — DATE: 10-9-87

Figure 6-6.- Example of a baseline annex CR.

and the annex title sheet to the CMO. The CMO forwards the annex and title sheet to the customer for signature. The transmittal letter is under the PIM's signature (copy to annex manager). This annex and title sheet now become the STS draft annex. If the customer approves, the customer signature/date is placed on the title sheet. The customer returns all annex materials to CMO.

The CMO returns the annex and title sheet to the annex manager. The annex manager then signs the title sheet and the DIR in location no. 3 (except if the annex manager originated the DIR), obtains concurrences on the DIR in locations no. 3 and no. 6 (see fig. 6-2) as appropriate per table 6-1. The annex manager coordinates NSTS program office approval signature and date by the designated office per table 6-1 in CR/DIR location no. 4.

If the customer has made changes to the annex, the annex manager coordinates a technical review at JSC prior to obtaining the NSTS concurrences and approval. If at any time all signatures are not obtainable, the annex manager schedules the DIR for presentation at the MICB through CMO. If the MICB does not approve the annex, it is returned to the annex manager for rework. The DIR may then be routed through the NSTS signature loop above and returned to the MICB, if required. Once all signatures have been obtained, the annex manager forwards the DIR and document to the CMO, which publishes the annex.

The official baseline date is defined to be the date of the last signature (whether the customer's or the NSTS representative's) on the document title sheet.

6.5 PIP Annex Changes

Figure 6-7 shows the annex change flow process, and figure 6-8 illustrates an annex update. This procedure is also used when issuing an annex revision document. A CR to change an annex may be written by the customer or the NSTS. If written by the customer, it is the customer's responsibility to obtain the appropriate customer signatures in locations no. 1 and no. 2 (see figure 6-2 for all references to CR signature locations), and the designated payload manager must also sign/date the CR in location no. 5 with the approval block checked. The customer sends the CR to the PIM, who obtains a CR number from CMO, forwarding the original CR to the annex manager and a copy to CMO. If the CR is generated by the NSTS, it is the originator's responsibility to obtain the appropriate signatures/dates in locations no. 1 and

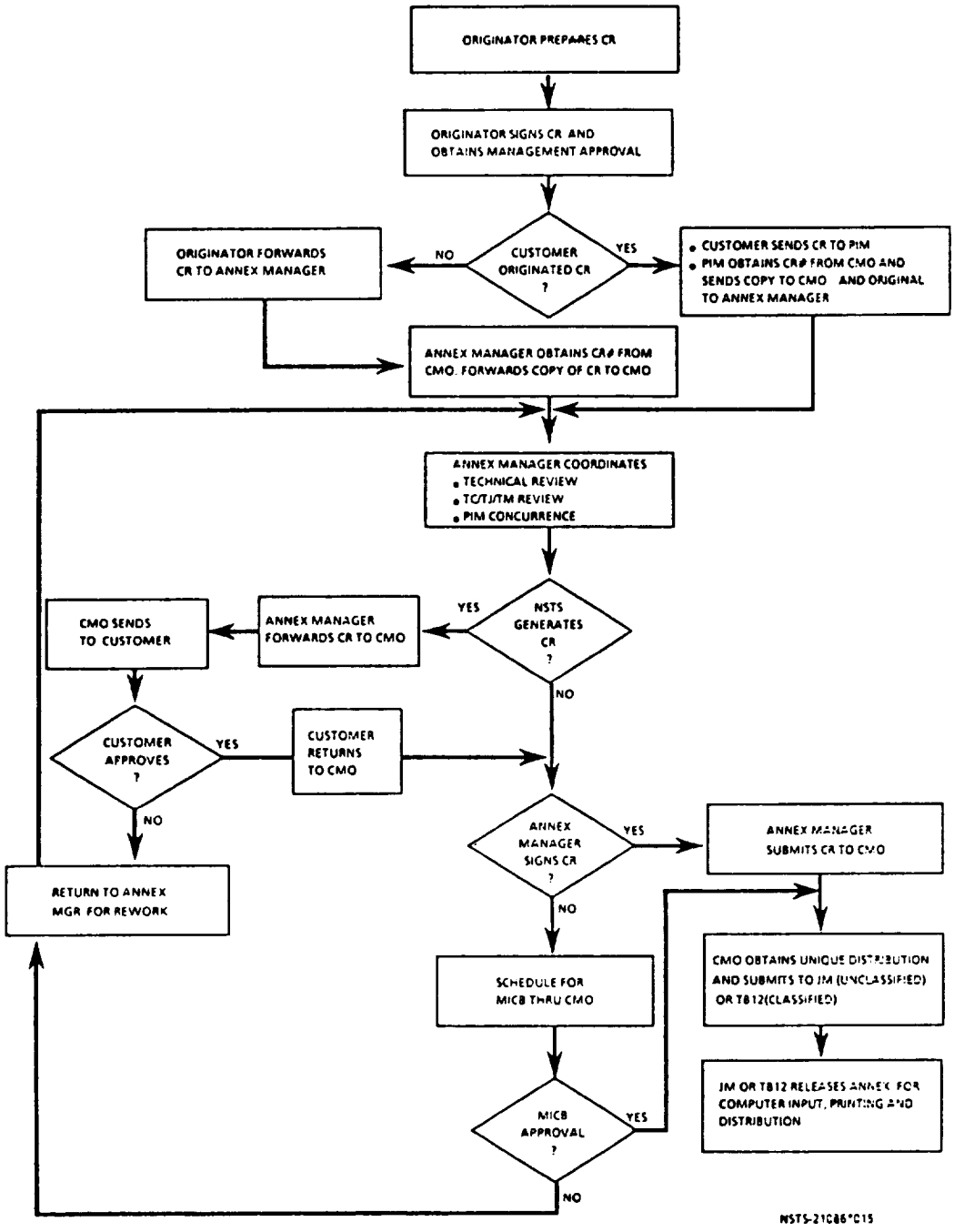

Figure 6-7.- Flow chart for changes to a PIP annex or issuance of a revision.

UCN#:	MICB CHANGE REQUEST/DIRECTIVE. NASA – Johnson Space Center	PAGE 1 OF 1
CR/DIR NUMBER P14019-A09-PT1-06	CHANGE TITLE U019 - TDRS OHSD Rewrite	DATE 8-4-87
DOCUMENT(S) AFFECTED (NUMBER & TITLE) JSC-14019, Annex 9, Interface Verification Requirements	PAYLOAD: SEQUENCE NO:	

COST IMPACT	WEIGHT IMPACT	SCHEDULE IMPACT	OTHER IMPACTS
N/A	N/A	N/A	N/A

DESCRIPTION OF CHANGE:
Re-baseline TDRS U019 File Ref (CN KU197LM)

JUSTIFICATION
To support the IUS/TDRS/NSTS Programs.

ACTION
TB: Return to initiator for complete file for Parts II and III.

JH: Update Tables 13, 14, 15, and 16.

INITIATOR/ORGANIZATION	DATE	ORGANIZATION APPROVAL	DATE
TJ4/J. A. Bradke J.A. Bradke	8/6/87	Annex Manager/J. A. McKeon	8/6/87

CONCURRENCE

	DATE		DATE
PIM/J. J. Conuel D.J. Conuel	8-10-87		
	DATE		DATE

DISPOSITION

☐ APPROVED ☐ WITHDRAWN ☐ APPROVED WITH CHANGES INDICATED ☐ DISAPPROVED	☒ APPROVED ☐ WITHDRAWN ☐ APPROVED WITH CHANGES INDICATED ☐ DISAPPROVED
SIGNATURE OF PAYLOAD MANAGER DATE	SIGNATURE OF NSTS PROGRAM OFFICE MANAGER DATE 8/6/87

Figure 6-8.- Example of an annex update CR.

no. 2 (see fig. 6-2) on the CR and to forward the CR to the annex manager. The annex manager obtains the CR number from CMO and forwards a copy to CMO. The annex manager then coordinates NASA review and obtains concurrences on the CR in location no. 3 (see fig. 6-2), as indicated in table 6-1. For NSTS-originated CR's, the annex manager sends the CR to CMO for forwarding to the customer for signature. The designated customer payload manager will sign/date the CR in location no. 5 (see fig. 6-2) and check the appropriate disposition block. The customer then returns the original CR to CMO.

If agreeable with its content, the annex manager signs/dates the CR in location no. 4 and submits the CR to CMO. It is then published.

If there is a problem with the content, the annex manager schedules the CR for MICB review through CMO. If not approved at the MICB, the CR is returned to the annex manager for rework and returned to the MICB, if required. Once approved by the MICB, the CR is published.

6.6 FRD and FTSOD Change Process

Changes to the FRD and FTSOD may be originated by anyone but are processed through the FIM and do not require customer signature. The originator fills out a CR/DIR form per section 5.2 and signs and dates in CR location no. 1. The originator's management signs/dates it in location no. 2 (see fig. 6-2) and sends the original CR to the FIM. Standard concurrences are obtained as indicated in table 6-1, any additional concurrences are designated by the FIM.

The FIM (or FIM representative) obtains a CR number from CMO and forwards a copy of the CR to CMO. If evaluation is required, the FIM provides a list of reviewers to CMO, which then sends out the CR for comment. The CR may be dispositioned outside the MICB by the Mission Integration Office Manager in accordance with table 6-1. The Mission Integration Office Manager will sign/date in CR location no. 4 (see fig. 6-2) and check the appropriate disposition block in that area.

The CR is normally dispositioned by the MICB. If disapproved, the CR is terminated. If more work is required, the FIM is given the action to rework prior to the CR being reconsidered. Once dispositioned, the CR is forwarded to CMO for filing and logging,

and a copy is forwarded to the FIM for incorporation into the FRD or FTSOD as required.

6.7 Flight Production Template/Flight Schedule Baseline Process

The flight production template or flight specific schedule proposal is prepared by TB and reviewed by the Flight Production Schedules Working Group (FPSWG). TB prepares a CR/DIR form and submits it to CMO. Mandatory evaluators for MICB CR's affecting schedules are listed on column 1 of figure 6-9.

A standard 2-week (10-workday) cycle is allowed for evaluation. If there are no issues, the CR will be presented to the FPSWG for dispositioning outside the MICB. If there are issues, the TB initiator negotiates evaluator comments and presents the CR to the MICB. These CR's do not have to be presented at the MICB preboard since the FPSWG serves this function. If approved at the MICB, TB updates the FPSWG schedules. If disapproved, the CR is terminated.

6.8 Flight Production Template/Flight Schedule Change Process

A proposed change to a flight production template or flight-specific schedule may be initiated by anyone in the NSTS. TB reviews and concurs on the change and obtains the concurrence of the FIM. The change is then submitted to CMO for the standard 10-workday cycle.

Mandatory evaluators for each type of change are depicted in figure 6-9. The uniqueness of each CR may require that additional mandatory evaluators be added at the discretion of the initiator.

If there are no issues from the MICB evaluation cycle, the CR can be signed out of Board by the FPSWG chairman. However, if there are issues, the CR is scheduled for the next MICB. The initiator summarizes evaluator comments and presents the CR to the MICB. Schedule changes that have already been approved by the PRCB; i.e., launch date, can be approved out of Board by the FPSWG chairman. Once approved, TB updates the respective template or schedule; if disapproved, the CR is terminated.

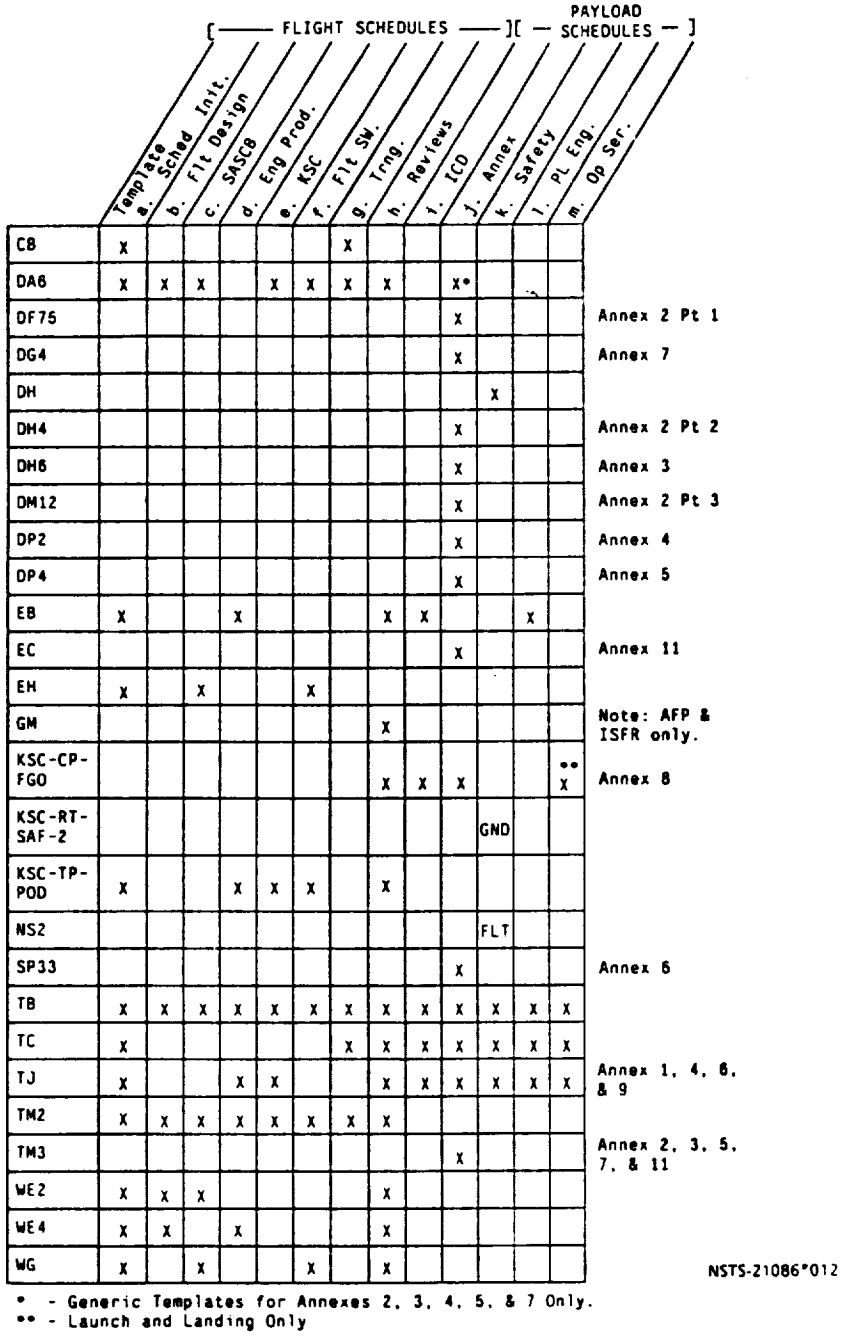

Figure 6-9.- Mandatory evaluators for MICB CR's affecting schedules (sheet 1 of 2).

Legend:

a. Flight Template and Schedule Initialization - Flight template and flight schedules which are being baselined for the first time or when the launch date or manifest undergo major revision.

b. Flight Design - Changes to activities associated with I-load development, including FRD and Trajectory Design Data Pack (TDDP) deliveries, ground rules and constraints baselines, and ascent flight system integration group dates.

c. Shuttle Avionics Software Control Board (SASCB) Review - Changes to I-load submittal and approval, and Data Change Request (DCR) submittal and aproval dates.

d. Engineering Product Deliveries - Changes to engineering flight product deliveries, mission integrated hardware deliveries, engineering Cargo Integration Review (CIR) data pack and the like.

e. KSC Milestones - Up Mission Processing Start (UMPS), KSC need dates of flight products, payload installation, Flight Readiness Firing (FRF).

f. Flight Software - Mass Memory Unit (MMU) reconfiguration 1, final MMU, final Shuttle Data Tape (SDT), and certified SDT.

g. Training - Ready for stand-alone training and ready for integrated training.

h. Major Reviews - Flight Integration Assessment Baseline (FIAB), Cargo Integration Review Dry Run (CIRD), CIR, Flight Planning and Stowage Review (FPSR), Ascent Flight Design Freeze Point (AFDFP), Launch Site Flow Review (LSFR), Flight Operations Review (FOR), Flight Requirements Review (FRR), Ground Operations Review (GOR), Payload Readiness Review (PRR)/Flight Certification Review (FCR).

i. ICD Activities - Self-explanatory.

j. Annex Activities - The appropriate blank book manager should be a mandatory evaluator.

k. Safety Activites - All phases, both data pack deliveries, and reviews.

l. Engineering Analysis and Payload Integration Hardware - Includes all thermal and load activities.

m. Optional Services - Any activity which falls under this heading which appears on the PIP schedule.

Figure 6-9.- Mandatory evaluators for MICB CR's affecting schedules (sheet 2 of 2).

6.9 Payload Template Baseline/Change Process

TB prepares a proposal to baseline or change a payload template and submits it to the FPSWG for review. TB then prepares a CR and submits it to CMO.

CMO sends the CR out for review and requests that comments be returned no later than the end of the standard 10-workday evaluation period. The CR is evaluated per figure 6-9.

After evaluation, TB presents the CR to the MICB. If approved, TB publishes it. If disapproved, the CR is terminated.

6.10 Payload Schedule Baseline Process

Payload schedules are baselined according to the normal PIP baseline process (section 6.2).

6.11 Payload Schedule Change Process

The CR initiator prepares a proposed payload schedule change. The PIM reviews and concurs on the CR, after which it is submitted to CMO. The CR is evaluated during the standard 10-workday period with mandatory evaluators as in figure 6-9.

After evaluation the MICB preboard screens the CR. The CR may be signed outside the Board at this forum if no issues have resulted from the evaluation process. If additional work is required, the CR is returned to the initiator. If issues exist, the CR is forwarded to the MICB.

If approved at either the preboard or MICB, the CR is transmitted to the customer for concurrence. If disapproved, the CR is terminated.

6.12 NSTS 07700 and Its Appendices Change Process

The Space Shuttle System Payload Accommodations (NSTS 07700, Volume XIV) and its appendices can be changed only through the CR process. This flow is depicted in figure 6-10 and described in the following paragraphs. An example CR for Volume XIV and its appendices is shown in figure 6-11. This process is also used when issuing a revision.

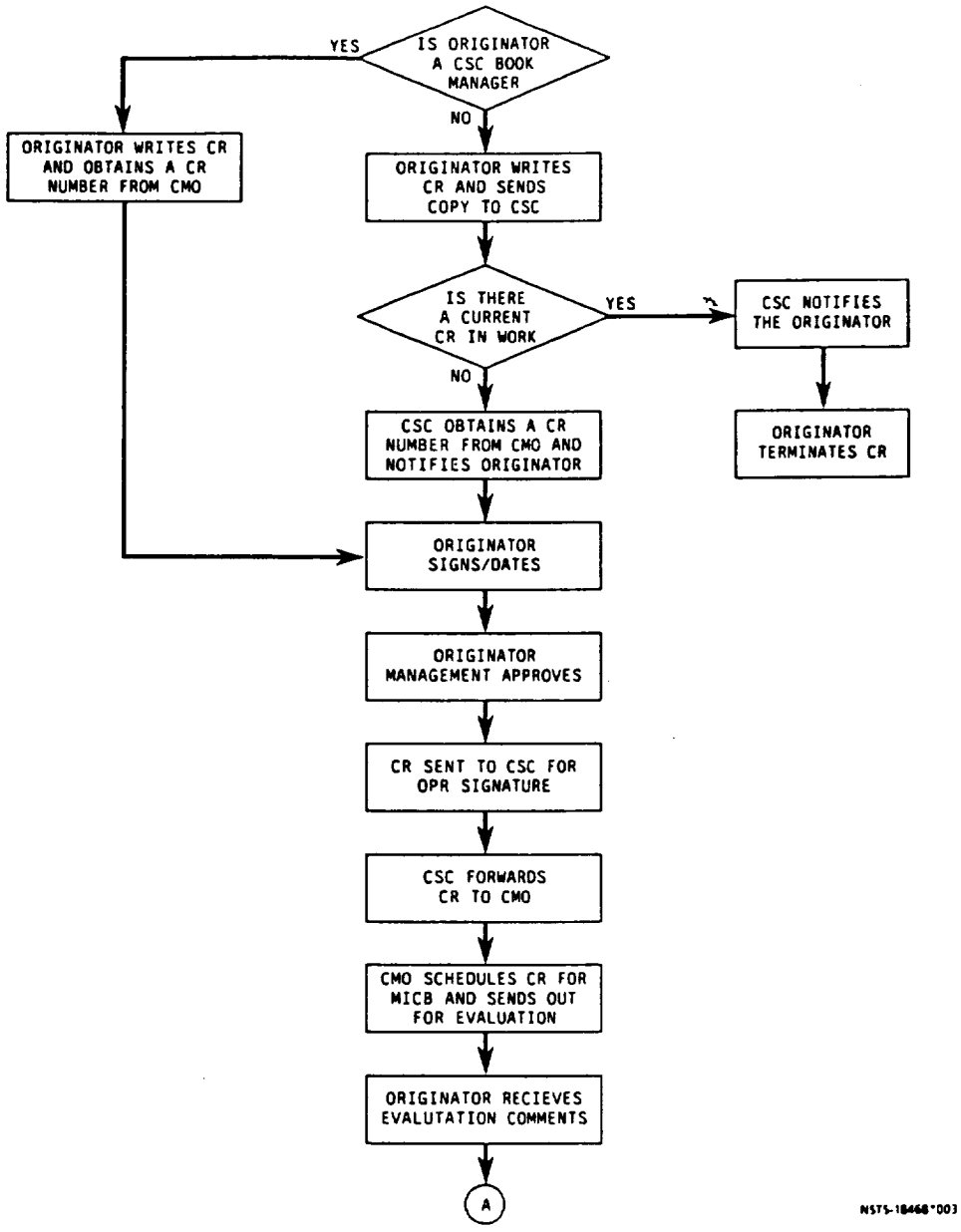

Figure 6-10.- Flow chart for changes to NSTS 07700, Vol. XIV and its appendices (sheet 1 of 2).

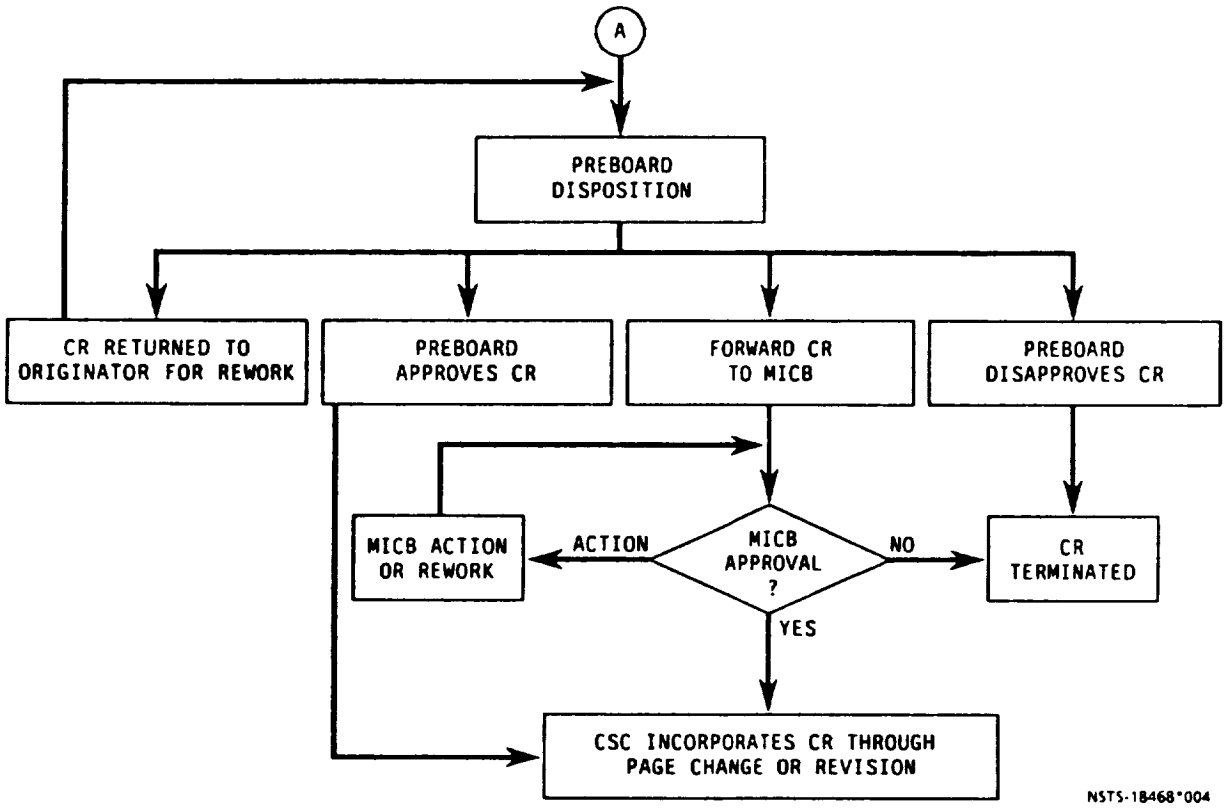

Figure 6-10.- Flow chart for changes to NSTS 07700, Vol. XIV and its appendices (sheet 2 of 2).

NASA - Johnson Space Center PAGE 1 OF 1

CR/DIR NUMBER	CHANGE TITLE	DATE
D 07700-014-002-07	Floodlight safety constraint	13 Feb. 1989

DOCUMENT(S) AFFECTED (NUMBER & TITLE)	PAYLOAD: / SEQUENCE NO:
NSTS 07700 Vol. XIV, Appendix 2-Thermal	

COST IMPACT	WEIGHT IMPACT	SCHEDULE IMPACT	OTHER IMPACTS
None	None	None	None

DESCRIPTION OF CHANGE.

Page 2-6, add the following paragraph to the end of Section 2.1.2:

Floodlight circuitry is such that a single failure could cause a floodlight to fail on. The payload must be designed to be safe with any floodlight failed on.

JUSTIFICATION

Floodlight circuitry is such that a single failure could cause a floodlight to fail on.

ACTION

TB13 - Process within CMO.

INITIATOR/ORGANIZATION	DATE	ORGANIZATION APPROVAL	DATE
TC12/Shawn Harrison	2-13-89	TC12/John Temple	2/13/89

CONCURRENCE

	DATE		DATE
	2/13/89	L. H. Jedekai/TC	2/13/89
	2/13/89		DATE

DISPOSITION

☐ APPROVED ☐ WITHDRAWN	☒ APPROVED ☐ WITHDRAWN
☐ APPROVED WITH CHANGES INDICATED	☐ APPROVED WITH CHANGES INDICATED
☐ DISAPPROVED	☐ DISAPPROVED

SIGNATURE OF PAYLOAD MANAGER	DATE	SIGNATURE OF NSTS PROGRAM OFFICE MANAGER	DATE
		R. J. Williams	2/24/89

JSC Form 402A (Rev MARCH 1987)

Figure 6-11.- Example of an update CR for NSTS 07700, Vol. XIV and its appendices.

Changes to Volume XIV and its appendices may be originated by anyone. The originator fills out a CR/DIR form per section 5.2 and sends a copy to the CSC. If there is not a current CR in work for this change, CSC obtains a CR number from CMO and notifies the originator. (CSC will also notify the originator if a CR is in work.) The originator adds the CR number to the original and signs/dates the CR in location no. 1 (see fig. 6-2). The originator's management signs/dates the CR in location no. 2.

After the required signatures are received, the originator will send the CR to CSC for OPR signature. CSC will forward the original CR to CMO. The proposed CR will then be processed according to section 5.4 of this document. Once CSC receives a copy of the approved CR from CMO, it will be incorporated through a page change or revision.

7.0 PUBLICATION OF PIP'S AND ANNEXES

The CMO is responsible for updating the PILS and publishing baselined documents (PIP's, SIP's, annexes, and annex blank books) and changes after joint approval by both the customer (where necessary) and NSTS. The following steps are to be followed:

a. Upon receipt, CMO notifies the originator and processes the CR/DIR and related documentation into the PILS. The document copy, along with the figures, schedules, title sheet, and CR/DIR number must be sent to CMO and must include any unique distribution list.

b. In the case of multipart documents that were originally published as one, the creation of a new part for the first time is similar to baselining the document. A unique CR/DIR tracking scheme begins with the publication of the new part as a standalone document. Since the initial document has already been baselined, it is not necessary to attach a title sheet for the publication of the new part. Authority for publication is recognized by the sole presence of a CR/DIR jointly signed by the NSTS and the customer.

c. The originator has the ultimate responsibility for ensuring that the document has been prepared correctly and will have the opportunity for its review at the PIP documentation area. The CMO will advise the originator only in cases where a new revision or baseline document is involved. For situations

involving individual changes, the originator will not be contacted. If no review is made, the document will be held until the originator has authorized publication without review.

d. The standard preparation cycle for a document (or a change package to a document) is approximately 1 week, with reproduction and distribution requiring an additional 2 weeks. Total turnaround time is about 3 to 5 weeks from the time the approved CR/DIR is first submitted until it is published.

e. The unclassified PIP documentation area has the authority to determine whether to publish a complete revision or a change revision to any STS payload document.

f. The originator should submit all changes to a specific document to CMO at one time for publication. Any additional changes submitted after the work cycle has begun may impact the flow until the document masters are released from distribution.

8.0 CLASSIFIED DOCUMENTS

Classified documents under MICB control will follow the same general procedures and organization responsibilities as described in this document. Classified documentation will be submitted to TB12 for processing. All typing, printing, filing, and distribution will be controlled in a secure area.

APPENDIX A

MISSION INTEGRATION DOCUMENT DESCRIPTION

The following is a description of documents under Mission Integration Control Board (MICB) control or otherwise related to the MICB.

a. NSTS 18468, Mission Integration Control Board Configuration Management Procedures - This document establishes detailed configuration management procedures for the control of program level requirements that have been formally delegated to the MICB or otherwise relate to the MICB.

b. NSTS 07700, Volume XIV, Space Shuttle System Payload Accommodations - This document provides information on the Space Shuttle system required by payload customers during the design definition phase. It provides potential customers with an official source of information on the Space Shuttle capabilities to deliver payloads into orbit and return them to Earth, the services provided to payload customers, and the means by which payload customers can avail themselves of these services.

c. NSTS 07700, Volume XIV Appendices 1 through 10 - These 10 appendices contain system description and design data concerning the accommodations and interface requirements in the basic document.

Appendix 1 - Contamination Environment
Appendix 2 - Thermal
Appendix 3 - Electrical Power and Avionics
Appendix 4 - Structures and Mechanics
Appendix 5 - Ground Operations
Appendix 6 - Mission Planning and Flight Design
Appendix 7 - Extravehicular Activities
Appendix 8 - Payload Deployment and Retrieval System
Appendix 9 - Intravehicular Activities
Appendix 10 - Integration Hardware

d. NSTS 07700, Volume XIV, Attachment 1, ICD 2-19001, Shuttle Orbiter/Cargo Standard Interfaces (pre-Program Requirements Control Board (PRCB) screening only). This document defines and controls Shuttle interfaces for use by payloads.

e. Shuttle/Payload Standard Integration Plans (SIP's) and SIP annexes - These documents guide preparation of integration agreements between the NSTS and customers (PIP development). The SIP contains the technical requirements, management interfaces, services, and schedules that normally apply to that type of payload. SIP annexes are provided to facilitate the definition of detailed integration requirements.

NSTS 21000-SIP-DEP Deployable Payloads
NSTS 21000-SIP-SML Small Payloads
NSTS 21000-SIP-MDK Middeck Payloads
NSTS 21000-SIP-PSP Payload Specialist Payloads
NSTS 21000-SIP-DOD DOD Deployable/Retrievable Payloads
NSTS 21000-SIP-ATT Attached Payloads
NSTS 21000-SIP-SLB Non-MSFC-Managed Spacelab Payloads
NSTS 21000-SIP-DRP Deployable/Retrievable Payloads
NSTS 21000-SIP-GAS Get-Away Special Payloads
NSTS 21000-SIP-SLM MSFC-Managed Spacelab Payloads

Annex 1 Payload Data Package
Annex 2 Flight Planning
Annex 3 Flight Operations Support
Annex 4 Command and Data
Annex 5 Payload Operations Control Center (POCC)
Annex 6 Crew Compartment
Annex 7 Training
Annex 8 Launch Site Support Plan (controlled by KSC, refer to KSC-CM-04.2)
Annex 9 Payload Interface Verification Summary
Annex 10 (reserved)
Annex 11 Extravehicular Activity (EVA)

f. Payload Integration Plans (PIP's) - The PIP defines the responsibilities, agreements, services, technical activities, interfaces, and schedule requirements to accomplish an effective operational integration of payloads into the National Space Transportation System (NSTS) Program.

g. PIP annexes - These documents contain requirements related to segments of the PIP. The annexes are separated into the following:

Annex 1 - Payload Data Package
Annex 2 - Flight Planning
Annex 3 - Flight Operations Support
Annex 4 - Command and Data

Annex 5 - Payload Operations Control Center (POCC)
Annex 6 - Orbiter Crew Compartment
Annex 7 - Training
Annex 8 - Launch Site Support Plan (controlled by KSC/CP-PSO)
DOD Launch Site Support Plan (controlled by KSC/TP-POD)
Annex 9 - Payload Verification Requirements Annex
Annex 10 - (reserved)
Annex 11 - Extravehicular Activity (EVA)

h. Interface Definition Documents (IDD's) - These documents define the standard interfaces required for specific types of payloads. They have been developed to facilitate the preparation of the payload-unique Interface Control Documents:

NSTS 21000-IDD-STD Shuttle/Payload Interface Definition Document for Standard Accommodations
NSTS 21000-IDD-SML Shuttle/Payload Interface Definition Document for Small Payload Accommodations
NSTS 21000-IDD-MDK Shuttle/Payload Interface Definition Document for Middeck Accommodations
NSTS 21000-IDD-SL Shuttle Orbiter/Spacelab Module Interface Control Document (authority delegated to TJ)

i. Payload-unique Interface Control Documents (ICD's) - These ICD's define, document, and control the interfaces between the Shuttle Orbiter and individual payloads (authority delegated to TJ).

j. NSTS 07700, Volume III, Flight Definition and Requirements Directive (FDRD) (screened if directed by MICB chairperson).

k. NSTS 17462, Flight Requirements Document (FRD) - The FRD defines, explicitly or by reference, the NSTS integrated requirements to be implemented for a specific flight. A preliminary FRD is prepared for each flight and used to define the specific requirements in preparation for the Flight Integration Assessment Baseline (FIAB). The FRD is baselined at the FIAB or immediately after the FIAB to authorize implementation of the specific flight requirements. The Cargo Integration Review (CIR) assessments are based on the baselined FRD. Appendix A of the FRD contains the flight-unique groundrules and constraints.

l. NSTS 21075, NSTS Operational Flight Design Ground Rules and Constraints Standard - This document defines the ground rules and constraints to be used for NSTS operational flight design. Flight-specific changes or deviations to the standard are provided as Appendix A to the specific FRD.

m. NSTS 17462A-XX, Mission-specific Ground Rules and Constraints (FRD Appendix A) - This document defines the ground rules and constraints to be used for NSTS operational flight design for a specific mission.

n. NSTS 16725-XX, Flight Test and Supplementary Objectives Document - This document contains the NSTS operational flight test requirements and supplementary objectives. The requirements, further defined as Development Test Objectives (DTO's), are an accumulation of those flight test requirements planned to complete the Space Shuttle system flightworthiness, mission operations, and design capability verification. Detailed Supplementary Objectives (DSO's) covering medical tests, Television (TV) requirements, photography requirements, and special investigations are also included.

o. NSTS 08171, Operational Maintenance Requirements and Specifications Document (OMRSD), Volumes II and IV, (pre-PRCB screening only).

p. NSTS Flight Production Schedules.

q. NSTS 1700.7B, Safety Policy and Requirements for Payloads Using the National Space Transportation System (pre-PRCB screening only) - This document establishes the policy and safety requirements applicable to all NSTS payloads and ground support equipment. It defines hazards and the measures necessary to monitor, to control, or to inhibit the hazards.

r. NSTS 21100, Orbiter Consumables Configuration Control Document - This document provides guidelines and philosophies used to construct the consumables budgets.

APPENDIX B

INTERFACE CONTROL DOCUMENT BASELINE AND CHANGE PROCESS

a. Baselining the Interface Control Document (ICD)

The ICD flow, to be used for the baselining of all unique payload ICD's, is illustrated in figure B-1. The specific areas of responsibility are defined as follows:

1. The ICD Manager is responsible for the overall baselining process and:

   (a) Coordinates customer/National Aeronautics and Space Administration (NASA) ICD meetings

   (b) Compiles ICD comments

   (c) Assures compliance with Payload Integration Plan (PIP) and ICD formats

   (d) Assures that unique ICD's are compatible with ICD 2-19001 (NSTS 07700, Volume XIV, attachment 1)

2. Working groups comprised of Engineering Directorate personnel and Cargo Engineering Office personnel, have the following responsibilites:

   (a) Conduct ICD technical review meetings and prepare a single coordinated set of minutes for each working group discipline

   (b) Assure technical compliance with ICD 2-19001

   (c) Negotiate technical contents with the customer

3. The Integration Contractor:

   (a) Prepares various levels of ICD's

   (b) Provides technical review of interface requirements and compatibility

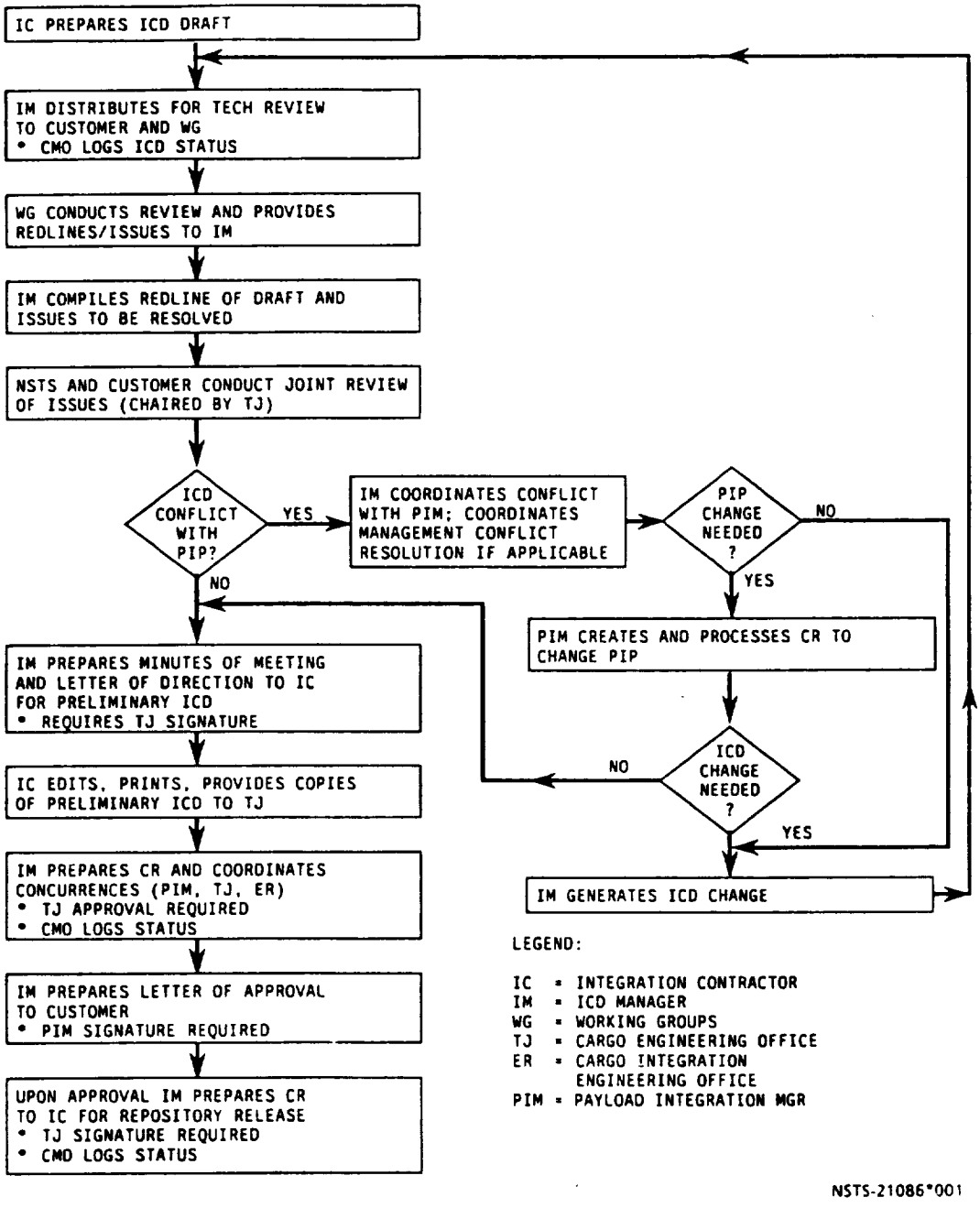

Figure B-1.- Payload ICD development flow chart.

b. Changing the ICD

After the ICD is baselined, all changes shall be processed on JSC Form 402F (refer to figure B-2). The requirements flow to be used for all unique ICD changes and for ICD 2-19001 is shown in figure B-3. The specific areas of responsibility are defined as follows:

1. The ICD Manager is responsible for the overall change process and:

   (a) Assigns change responsibility to working groups

   (b) Reviews the change for PIP compliance

   (c) Concurs on the ICD change directive

   (d) Coordinates changes with the customer

   (e) Establishes the schedule for evaluation and formal review and distributes and tracks same

   (f) Establishes the review agenda and acts as technical coordinator for review

   (g) Submits changes and advises on impacts to ICD's

2. The Interface working group:

   (a) Reviews changes for technical impacts and acceptability

   (b) Negotiates changes with the customer and integration contractor

   (c) Develops final agreement changes for signature by the working groups, customer, and integration contractor

3. The Integration contractor:

   (a) Performs technical reviews of changes

   (b) Prepares various levels of change documentation

   (c) Maintains current status regarding the ICD

   (d) Releases change pages and updates the document

INTERFACE REVISION NOTICE (IRN)

AFFECTED ICD		IRN		
1. ICD No.	Rev	2. Tracking Identifier A. B. C. PCIN	3. No.	4. Sheet 1 of 6. Panel Affected
5. ICD Title		7. THIS IRN EFFECTIVITY		

8. Reason for Change

9. DESCRIPTION OF CHANGE

10. Prepared By	11. Tech Concur.	12.Organization		13. Date

14.	Sign. and Orgn.	Rev.	Date	Sign. and Organ.	Rev.	Date	Sign. and Organ.	Rev.	Date
C									
O									
N									
C									
U									
R									
15.				JSC Approval		Date			Date

Figure B-2.- Example of IRN form, Rockwell form 6004w (sheet 1 of 4).

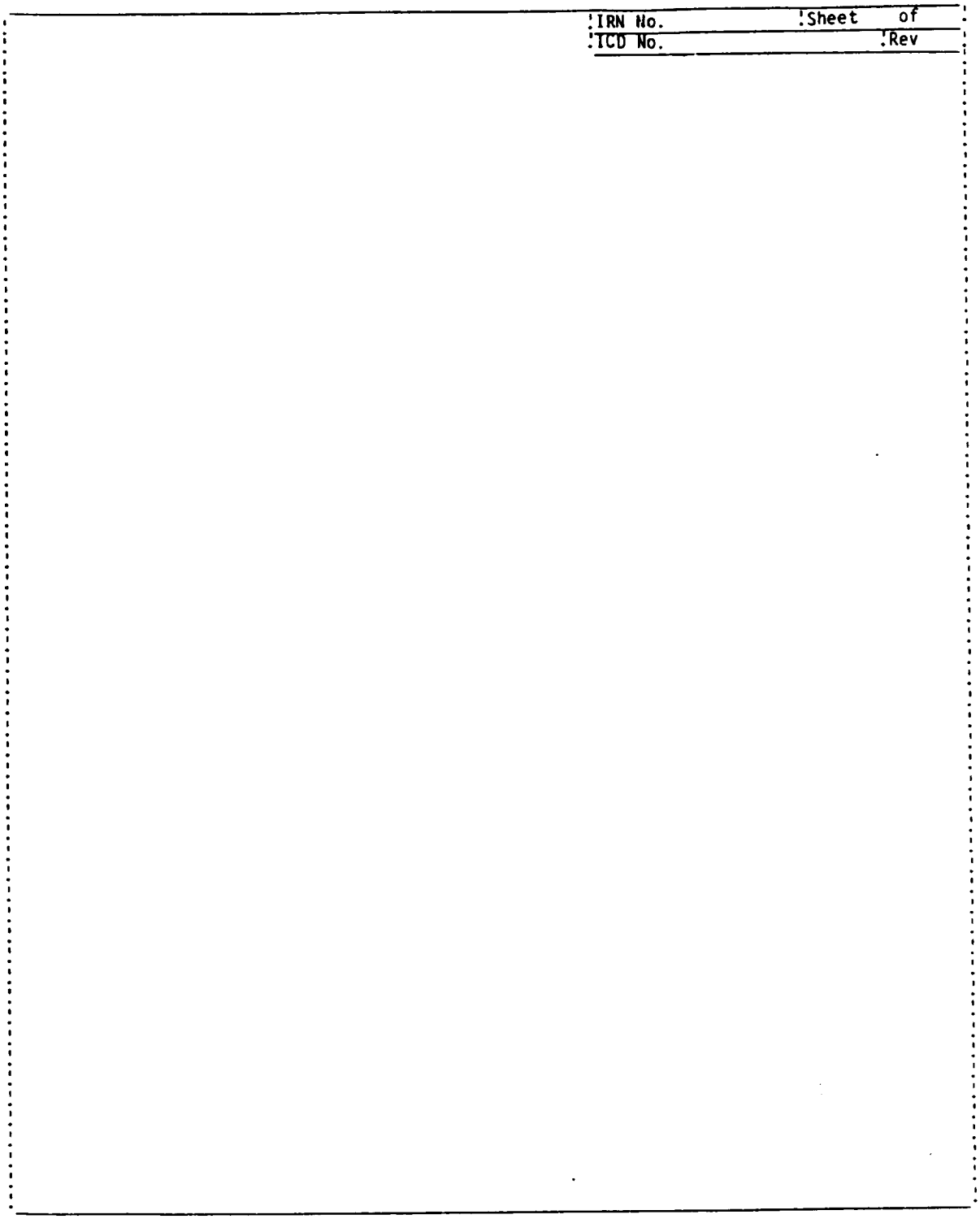

Figure B-2.- Example of IRN continuation form, JSC form 3935 (sheet 2 of 4).

Legend:

1. SCOPE - The Preliminary Interface Revision Notice (PIRN) shall be used to propose changes to baselined ICD's.

2. CONTENTS - The following data elements shall be included in all IRN's. All blocks shall contain an entry, except as noted herein. If all data cannot be included within the space allocated on the forms, continuation sheets shall be used as necessary. The IRN shall be completed as follows:

   Block

   1. Enter the complete ICD number and revision symbol, if applicable, of the ICD affected by the IRN.

   2. Enter the NASA tracking number provided by the RI/Downey Configuration Management Office.

   3. Leave blank.

   4. Enter the total number of sheets.

   5. Leave blank.

   6. Enter the name of the initiator.

   7. Leave blank.

   8. Enter the specific ICD's that are affected by this IRN and the impact of the change.

   9. Enter the title of the affected ICD as it appears in the Space Shuttle Integrated Program ICD Status List.

   10. Enter the model/serial number effectivity of the change described by the IRN.

   11. Enter the reason for the change.

   12. Leave blank except when this IRN is used to change the effectivity of the ICD.

   13. Leave blank except when item 12 is completed.

Figure B-2.- Example of IRN continuation form, JSC form 3935 (Sheet 3 of 4).

14. Leave blank except when this IRN is used to change the effectivity of any previous IRN.

15. Leave blank except when item 14 is completed.

16. Leave blank except when item 14 is completed.

17. Enter the exact proposed change, using continuation sheets as necessary.

18. Enter the name of the engineer preparing the IRN.

19. The signature of the contractor representative providing technical concurrence.

20. Enter the name of the design activity/contractor preparing the IRN.

21. Enter the date that the IRN was prepared.

22. The technical concurrence signature of the designated associate design activity/element contractor's technical representative and the chairperson of the responsible interface working group.

23. Enter the affected government agency, associated Configuration Control Board Directive (CCBD), Program Requirements Control Board Directive (PRCBD) for Level II change, and data approving the change IRN/revised ICD.

NASA-JSC

Figure B-2.- Example of IRN continuation form, JSC form 3935 (Sheet 4 of 4).

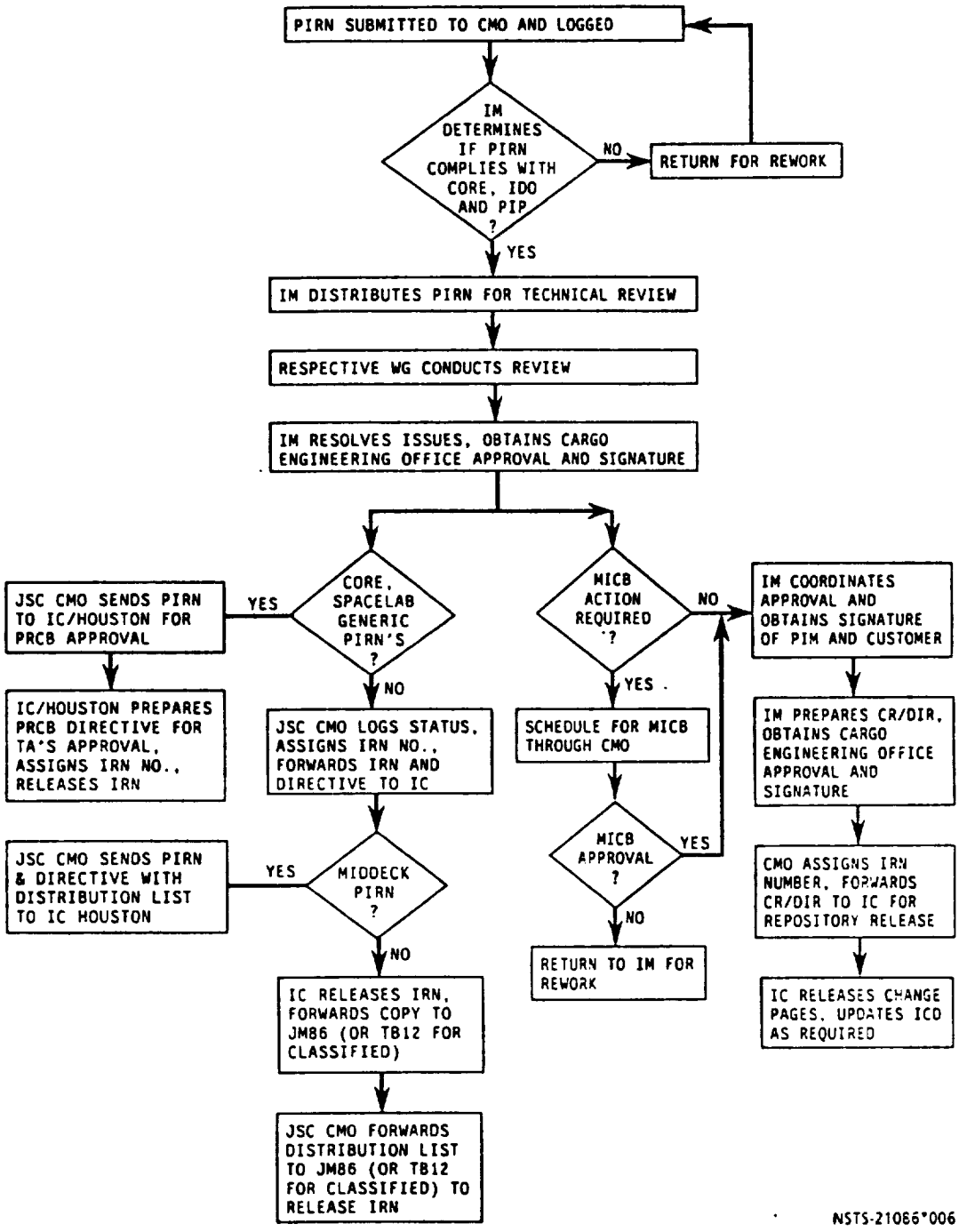

Figure B-3.- Payload ICD change flow process.

c. Numbering system

Each official change form leading to the final ICD change has a unique numbering scheme. Depending upon the originating organization, the form has provision for incremental numbering of successive forms and for revisions to a unique change form. Revisions are indicated by the form number followed by consecutive letter assignment beginning with A, B, etc.

Examples	NOMENCLATURE
Preliminary Interface Revision Notices (PIRN's)	A0001
Change Requests (CR's)	A0001
Configuration Management Office (CMO) assigned Interface Revision Notice (IRN)	1
Pre-Program Requirements Control Board (PRCB) assigned Program Change Identification Program (PCIN's)	32897
PRCB assigned IRN	0318

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